WEST MARKETING ISSUE
Pages 9-16

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Scientists Studying Combining Fertilizer With Gibberellic

Seek to Boost Root Development, Greening In Stimulated Plants

WASHINGTON—A series of studies on practical possibilities of combining fertilizer supplements with gibberellic acid have been started here by scientists of the Agricultural Research Service, U.S. Department of Agriculture.

The scientists point out that young plants stimulated with gibberellic acid are often handicapped in root and foliage development, even when the soil nutrients and fertilization are such as would oridinarily assure a desirable balanced growth.

Thus, the scientists say, it seems possible that a supplement of the right nutrients might improve the root development and greening of young stimulated plants, and improve their later growth and yields.

A summary of work in this field is included in a special report on gibberellic acid, published recently by the U.S. Department of Agriculture. The following is from that report.

In this new fertilizer research, each successive study has provided some basic information, although limited to a single test plant, a single type of soil and greenhouse conditions. Within these limits, the results so far are mainly encouraging.

The initial experiments were aimed at gaining information on two related questions on which combined use of gibberellic acid and fertilizer, both in solid forms, would depend:

1. Can gibberellic acid blend compatibly with dry fertilizer materials, not losing effectiveness?

2. Can gibberellic acid combined with solid fertilizer salts retain its

(Turn to GIBBERELLIC STUDIES, page 20)

USSR Waging Economic War with U.S. Pesticide Industry, Western Group Told

SAN MATEO, CAL.—The agricultural chemical industry is waging an economic war with the USSR for world markets. Whether we are aware of this fact or not, "the enemy . . . has already started probing our defenses, has established a beach head and is challenging our export position almost everywhere in the world."

This warning was voiced Oct. 15 by E. T. Collingsworth, president of the Velsicol Chemical Corp., Chicago, at the 29th annual meeting of the Western Agricultural Chemicals Assn. at the Villa Hotel, San Mateo.

The manufacture of both fertilizers and pesticides in the Soviet Union plays important roles in that country's plans for industrial expansion, Mr. Collingsworth said. With the current emphasis on consumer goods, fertilizers are essential, and production had increased by 83% between 1951 and 1955 with the erection of new processing plants in Asian areas and the Ukraine. By 1965, he predicted, "The USSR will be producing as much fertilizer on a plant nutrient content basis as the U.S."

As to insecticides, the increase in production between 1951 and 1955 was about double. USSR already has begun its invasion of foreign markets which have been predominantly ours in the past, and is attaining a dominant position in other areas of the world, Mr. Collingsworth warned.

He outlined a program to combat this invasion. Special task forces, he suggested, could conduct "a detailed survey of the underdeveloped countries by insect, crop and disease . . . to conclude what the current crop yields and health standards are and then to project what is required for satisfactory living conditions."

Companies could be organized with U.S. capital and experienced personnel to supply products immediately needed and to formulate plans for long term operation, he said. A relaxed government tax policy to allow for prices depressed by Russian competition, additional technical service cost and extended credit terms could spur corporate interest in such a program. The costs of the program to the government through decreased tax revenue could be defrayed by the current foreign aid allocation.

Mr. Collingsworth believes the importance of instituting such a plan is broader than the self interest of the agricultural chemicals industry. "We, as a people, had better do something about meeting health and hunger needs of foreign peoples as a means of promoting liberty as a way of life over Communism," he advised.

Mr. Collingsworth's address concluded the two day convention. Earlier in the program speakers discussed specific technical subjects and industry public relations.

Frank C. Lamb of the Western Research Laboratory of the National Canners Assn. asked for close cooperation between crop growers and canners "to solve the problems in the never ending struggle between man and insects."

Faced with the fear of pesticide

(Turn to WACA MEETING, page 17)

At Rutgers Conference

Farmers Fail to Associate Fertilizer Use With Income-Raising Plans, Says Survey

NEW BRUNSWICK, N.J.—Farmers in the Northeast give a great deal of thought to the use of more commercial fertilizer in their operations, yet most of them fail to associate fertilizer with their own plans for increasing farm income.

This is only one of the "food-for-thought" results of a survey briefly reviewed at the New Jersey Fertilizer Conference, Rutgers University, on Oct. 2. Dr. W. H. Garman, chief agronomist and northeastern regional director of the National Plant Food Institute, summarized sections of the NPFI-sponsored survey dealing with the Northeast.

Apparently, one of the challenging outcomes of the survey was the discovery that more than half of the farmers queried — 54% — indicated they had no plans for increasing farm income over the next five years.

And of the 46% hoping for increased prosperity, only 10% would try to reach their higher income goal by using more commercial fertilizer. Much farther up on the list of things to do to increase income was a change in either the kind or amount of livestock holdings.

Puzzling, in the light of these responses, were replies to the question, "What does the most toward making a 'really good farmer'?" Farmers placed the greatest importance on "more fertilizer per acre." Trailing use of fertilizer for success were factors such as more machinery, harder work, more fertile land, better crop rotations, use of better seed and others.

Dr. Garman confined his analysis to the survey report for the Northeast. Here, as in other sections of the country, each farmer was classified as to his use of fertilizer and placed in one of four groups: (1) high user, (2) medium user, (3) low user, and (4) used no fertilizer in 1956 on

(Turn to N. J. CONFERENCE, page 8)

Fertilizer Industry Growth, Change Traced at Agricultural Research Institute Meeting

By LAWRENCE A. LONG
Editor of Croplife

WASHINGTON—A three man panel discussing the fertilizer industry's marketing and production problems comprised an important part of the two day program of the Agricultural Research Institute's seventh annual meeting here Oct. 13-14.

The registrants, numbering 150 and representing many fertilizer firms, heard a talk describing agricultural research in foreign countries, a panel discussion of soil and water conservation and a panel discussion of public relations as related to agriculture and agricultural research.

Dr. Vincent Sauchelli, chemical technologist, National Plant Food Institute, was chairman of the panel on fertilizer producing industry. Appearing on the panel were M. B. Gillis, International Minerals and Chemical Corp., Chicago; Edwin Cox, chemist and chemical engineer consultant, Virginia-Carolina Chemical Corp., Richmond, Va., and E. D. Crittenden, Allied Chemical Corp., New York.

In his introduction Dr. Sauchelli

(Turn to FERTILIZER CHANGES, page 21)

Inside You'll Find

Over the Counter 9
What's New 10
Editorials 22
Meeting Memos 23
Advertisers' Index 23
Classified Ads 23

A.A.C. Co. Buys Physical Assets Of Knoxville Firm

NEW YORK—The American Agricultural Chemical Co. announced that it has contracted to purchase substantially all the physical assets of the Knoxville Fertilizer Co. with plants at Knoxville, Nashville, Johnson City, Tenn. and London, Ky. These plants will be operated as the Knoxville Fertilizer Division of the A.A.C. Co. under the management of the present Knoxville Fertilizer personnel. The Knox Fertilizer line will continue to be sold.

A.A.C. Co. officials indicate the purchase will be completed by Oct. 31. Knoxville officers who will form the management team when the firm becomes a division of American Agricultural include J. C. Dean, president; Scott Dean, vice president; Newton Myers, vice president; Bennett Brown, secretary; and Carter Myers, treasurer.

The purchase is the third in three years by the New York fertilizer company. A year ago in October it acquired the physical assets of the

(Turn to BUYS FIRM, page 21)

Corn Growers Decide Future Program, Nov. 25

WASHINGTON—On Nov. 25, corn growers will vote in a referendum at local polling places in the 932 counties of the 1958 commercial corn area. On that day they will decide themselves which corn program will be in effect in 1959 and later years.

The referendum choice is between two alternative programs, as offered by Congress in the Agricultural Act of 1958. They are designated as program No. 1 (the new program with price supports on all corn and without acreage allotments, and with support levels determined on a new basis), and program No. 2 (about the same as the one in effect in recent years).

Program No. 1, as explained by the U.S. Department of Agriculture, consists of:

- No acreage allotment controls on corn.
- Price support available for all corn of eligible quality, at the same "national average" level. (If the new program is approved, price support for other feed grains will be mandatory at levels determined to be fair and reasonable in relation to the price support for corn, taking into consideration the relative feed value of the commodity and other factors).
- National average price support at 90% of the average price for corn received by farmers for the three preceding years—but not less than 65% of the parity price.
- No designated commercial corn area.

(For 1959, it is estimated that the national average price support level under this provision would probably be about $1.12 to $1.15 bu. for all corn).

Under program No. 2, USDA explains, the main features are:

- A national corn acreage allotment each year, with the size of the allotment governed primarily by the corn supply. Individual allotments, as shares of the national total, for all corn farms in the commercial area.
- Price support available, in commercial areas, only for corn produced in compliance with farm acreage allotments. It is not planned to continue supports on corn not in compliance with acreage allotments.
- Price support within a range of 75 to 90% of parity, depending on the corn supply situation.
- Establishment of a commercial corn area each year.

(The national corn acreage allotment for 1958 was 38,800,000 acres. Because of heavy current corn supplies, the 1959 allotment would probably be about 33 million acres, or 15% less than this year.)

(For 1959, it is estimated that the national average level of price support available for corn produced in compliance with farm allotments would probably be about $1.24 to $1.27 bu.)

A simple majority of the votes cast will decide the program.

Lenox Fertilizer Corp. Reports Doubled Sales

LENOX, IOWA—J. Howard Brown, president and general manager of Lenox Fertilizer Corp. here, estimates the use of fertilizer in this area has doubled since the plant opened in 1956. Half of the fertilizer sales are bulk. The plant has 13 bulk spreader trucks for lease. The Lenox plant was started through efforts of the Lenox Development Corp. and is capitalized at $100,000. Mr. Brown formerly was with the Radco Fertilizer Corp., which operated bulk stations in southern Iowa. He headed Radco division at Creston, Iowa, until the business was sold in 1953 to Chemical Enterprises of New York.

Wisconsin Fertilizer Sales in 1957-58 Near All-Time High

MADISON, WIS.—Evidence that Wisconsin's farmers are pushing for top yield in their crop production is seen in the statistics of fertilizers used in the past year.

Total fertilizer used by farmers in the state this past year was 436,108 tons, according to W. B. Griem of the State Department of Agriculture.

Mr. Griem said this total tonnage was an increase of 2.3% over that used last year and only 100 tons short of the record tonnage used in the state during the 1953-54 season.

He also said that fertilizers were continuing the trend toward the use of higher analysis fertilizers, with a new high of 40.28 units of plant food reached. This compares with last year's 37.43 units and 26 units back in 1948.

The most popular grade of fertilizer, according to Mr. Griem, was the 5-20-20. Farmers used 112,023 tons of this compared to 104,376 tons the year before.

Meanwhile, the once popular 3-12-12 grade, which has the same ratio of plant food, dropped to a new low of 36,338 tons this past year, compared to 54,133 tons the season previous. Also, at the same time, another grade with the same ratio of plant food, 6-24-24, doubled over the year before for a total of 26,191 tons.

A slight increase in the use of potash and phosphate fertilizer materials was noted. Again, the shift to higher analysis material was evident with the tonnage of 20% superphosphate dropping from last year and use of calcium metaphosphate increasing. Use of 60% muriate of potash increased also. Entering the field of plant food is the bulk delivery of fertilizer to farmers' fields. During the fall of 1957 and spring of 1958, 20,874 tons of dry mixtures and materials were delivered. This accounted for 4.8% of the total fertilizer utilized in the past season.

Another method of fertilizing, using liquid mix, accounted for 5,472 tons of fertilizer used. Smaller amounts of fertilizers, containing insecticides and herbicides are being used in a new innovation in the field of fertilization.

Davison Shifts Sales Personnel in Territories

BALTIMORE—Expansion in personnel and realignment of sales territories for Davison triple superphosphate have been announced by William Caspari, Jr., general sales manager, agricultural chemicals, W. R. Grace & Co. Davison Chemical Division.

George Klein has been assigned the central territory east of the Mississippi, from Tennessee to Wisconsin; Basil Wagner operates in North and South Dakota, Nebraska, Iowa and Wisconsin; C. K. Brutcher covers the Southwest, and J. G. Carroll the eastern territories.

All men are veterans of the Davison organization, with diverse experience in manufacturing and sales. Mr. Klein has been with Davison 30 years. Mr. Brutcher has been transferred to his new post from superintendent of manufacture at Davison's mixed fertilizer plant in New Albany, Ind.

Allan Settle Named MCA Public Relations Director

WASHINGTON—Allan E. Settle has been named director of public relations of the Manufacturing Chemists' Assn. as of Nov. 1, Gen. John E. Hull, MCA president, has announced.

Mr. Settle succeeds George M. Worden, who resigned from MCA to open his own public relations firm in Washington. Mr. Worden will continue with the MCA in a consulting capacity.

Mr. Settle comes to MCA from the public relations staff of Monsanto Chemical Co., which he joined in 1950 as a member of the staff of Monsanto Magazine. He later moved into general corporation public relations work, including broad experience in community relations and special projects. He was active in coordinating Monsanto's public relations and education projects connected with MCA and served on various MCA public relations committees.

Mr. Settle is a graduate of Kansas State College, and holds a master's degree from Columbia University. He worked for a time on the Kansas City Star and other newspapers, and during World War II served in the Air Corps. At present he is a colonel in the Air Force reserve.

Mr. and Mrs. Settle and their son, John, will move to Washington from St. Louis about Nov. 1.

Construction to Start Soon on Valley Nitrogen Co-op Fertilizer Plant

SAN FRANCISCO—The board of directors of the Valley Nitrogen Producers, Inc., announced in September that sufficient stock has been subscribed to assure immediate construction of a farmer-owned cooperative fertilizer plant.

Within the past five months, California farmers have subscribed to over $4 million worth of stock in the company. The company reported recently that inquiries from farmers are still coming in at a "rapid pace."

The board of directors has set the limit for stock sales at $5,250,000. The balance of funds needed for the $9 million plant will be obtained from the Berkeley Bank for Cooperatives.

The plant will be located in the San Joaquin Valley, although the exact site has not yet been selected. Construction contracts are expected to be awarded by the end of November, and completion of the project is anticipated in about 14 months.

Daily capacity of the new plant will be 150 tons of anhydrous ammonia, plus aqua, liquid mixes, ammonia sulphate and other dry mixes.

Bogardus Werth Named to Michigan Chemical Staff

SAINT LOUIS, MICH.—Michigan Chemical Corp. announced the appointment of Bogardus Werth to its chemical sales staff.

Mr. Werth comes to his new assignment from Virginia-Carolina Chemical Corp. where he was assistant sales manager for agricultural chemicals. Prior to that he was employed by the Virginia State Agricultural Extension Service as assistant county agent and county agent in northern Virginia. He is a graduate of Virginia Polytechnic Institute.

NAC MEMBERS INVITED TO VISIT LABORATORIES

WASHINGTON—Members of the National Agricultural Chemicals Assn. have been invited to visit the laboratories of the Communicable Disease Center, Department of Health, Education and Welfare in Savannah, Ga., L. S. Hitchner, executive secretary, announced.

According to Mr. Hitchner, the invitations came from Dr. S. W. Simmons, scientist director and chief of the technology branch, and Dr. K. D. Quarterman, chief of the technical development laboratories.

Visits to the laboratories have been set for 2:30 to 5 p.m., Oct. 29, Mr. Hitchner said, and interested members are asked to contact him at the NAC headquarters here.

Dr. Charles E. Palm

Dr. Charles E. Palm Named Cornell Dean

ITHACA, N.Y.—Dr. Charles E. Palm has been named dean of the New York State College of Agriculture at Cornell University effective July 1, 1959.

Announcement was made by Deane W. Malott, president of the university. Dr. Palm, an entomologist, succeeds W. I. Myers who is retiring after 16 years as dean and 45 years on the Cornell faculty.

Now director of the Cornell University agricultural experiment station and research director for the state colleges of agriculture and home economics, Dr. Palm is the former head of the university's department of entomology and limnology.

Plowville Exhibit Traces Minnesota Corn History

ST. PAUL, MINN.—Corn fields which traced the history of the crop from Indian maize to modern high-yielding hybrids, were featured at Plowville, the 1958 Soil Stewardship Days near Sanborn, Minn.

The demonstration, set up by the University of Minnesota agricultural extension service on the Frank Crippen farm, also previewed the "corn field of the future."

In fields of the past, visitors saw multi-colored Indian corn, corn grass pod corn and corn plants that grew along the ground.

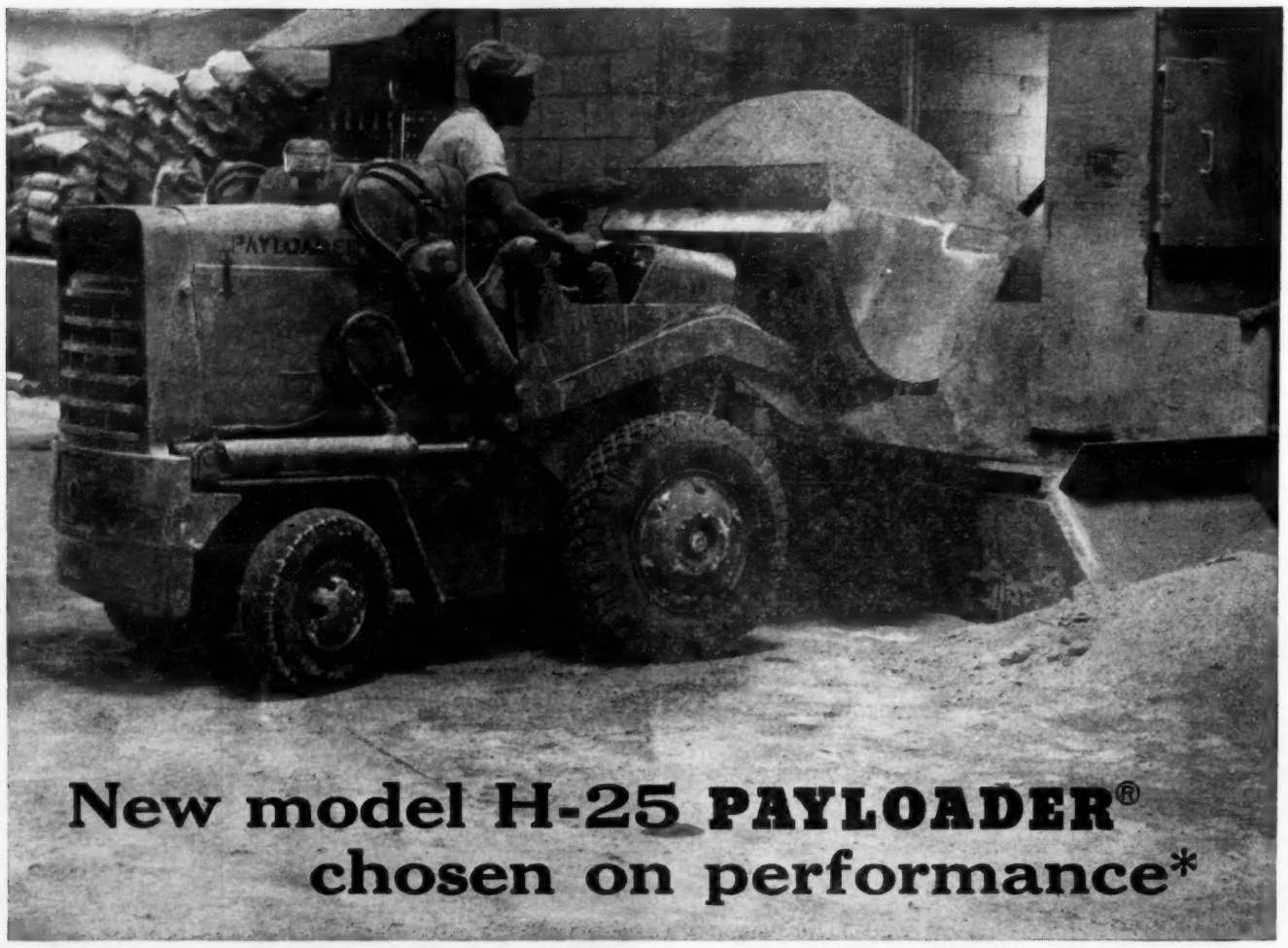
A second group of plots showed "corn of today," including hybrid corn varieties used in developing corn borer resistance, stalk rot resistance, high yielding ability and other characteristics. Visitors also saw results of wheel-track planting compared with conventional tillage, results from different chemical weed-control procedures and effects of different corn plant populations.

The "Corn Field of the Future" showed alfalfa seeded between wide corn rows with the corn replacing oats or other small grain as a "companion crop."

Some 15 exhibits were on display in the University of Minnesota tent, near the Plowville headquarters area on the Martin Lehne farm. One exhibit in the tent showed how to take soil samples and how tests are conducted and interpreted.

NEW CANADIAN PLANT

BELLWOOD, ILL.—A plant to produce steel pails used for packaging and shipment of chemicals and similar products will begin production early in November at Vancouver, B.C., Canada, Vulcan Containers, Inc., has announced. The Vulcan plant is the first steel pail manufacturing facility in Canada's Pacific Coast area, according to a joint announcement by Vern I. McCarthy, president of the firm, and Norman G. Bernecker, president of Vulcan Containers, Ltd., Toronto.



***Chase and Company Fertilizers staged competitive trials** when it needed a tractor-shovel for its new Sanford, Florida plant. Instead of listening to a lot of claims, it had competitive sizes brought in and tested side-by-side. One of the new model H-25 "PAYLOADER" units won the trials, and Mr. Carson Cook, Assistant Plant Manager, summarizes the verdict in favor of the H-25 as "more capacity, better maneuverability, and easier operation due to Hough power-shift transmission and power-steering."

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Other model H-25 "exclusives" in its class are power-steer and power-transfer differential. The latter gives more reliable traction under slippery conditions by automatically shifting more power to the wheel with the better traction.

Other "extras" that are standard on the H-25 are bigger, more powerful engines (gas or diesel available) and the most complete system of air-filters, oil filters and oil and grease seals to protect working parts against dust and dirt.

If you want to find out about all the other advantages of the H-25 "PAYLOADER" and its ability to handle more tonnage at lower cost consult your Hough Distributor. Ask him about Hough Purchase and Lease Plans, too.

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Research in the News

That Vaseygrass will make a good summer pasture has been shown by a utilization test conducted at the experimental tung field of the South Mississippi Branch Station near Poplarville. Thirty-six acres of Vaseygrass that had volunteered following oats was mowed July 21 and topdressed with approximately 58 lb. of ammonium nitrate per acre. This area was mowed again on Aug. 10. Grazing was started July 21 and continued until Sept. 15. Results of this test are given in Table 1.

It will be noted that the 36 acres of volunteering Vaseygrass was utilized for grazing and netted $218 for the 56-day period. There was still good grazing on the field at the end of the period but the area was needed for a winter crop.

Vaseygrass is capable of producing large quantities of nutritious plant material per acre. The average yield of Vaseygrass at State College on Bell clay loam soil, without fertilization, is shown in Table 2.

The 3-year average of chemical analyses (dry weight basis) of Vaseygrass harvested in the early boot stage is as follows: calcium 0.32%, phosphorus 0.20%, and crude protein 3.53%.

Vaseygrass is to be found growing abundantly throughout the southern two-thirds of the state. It grows well in wet land, and also on well-drained soils where moisture may be deficient for weeks. It grows on both light and heavy soils. It is a stout, erect perennial with many stems, growing in clumps. The seed stalks are very hairy and purplish at the base. They grow 2-6 ft. tall and have 6-25 (usually drooping) racemes or "fingers" of the seed head. The leaf blades are 3 to 14 in. long and up to ½ in. wide. They resemble Dallisgrass leaves. The plant loses its palatability and quality with age. It should be cut for hay when 24 to 30 in. tall and grazed when 12 in. tall. The upright growth prevents it surviving severe trampling or grazing and it can be eliminated by close mowing or grazing. The seed is extremely hairy, light in weight, grayish brown in color, and much smaller than Dallisgrass seed.

Vaseygrass produces more viable seed than Dallisgrass or Bahiagrass. Commercial seed production is practically non-existent, due to lack of harvesting knowledge, machinery, and excessive shattering.

TABLE 1. Results of Grazing Range Steers on Vaseygrass Following Oats at the Experimental Tung Field, July 21-Sept. 15, 1950

No. acres	36
No. steers	24
Initial weight of steers (lb.)	10,755
Final weight of steers (lb.)	12,655
Net gain (56 days) (lb.)	1,900
Average gain per acre (lb.)	52
Average daily gain per steer (lb.)	1.41

Financial Statement

	Dollars
Selling price per cwt.	21.20
Cash return from pasture	402.00
Cost of pasture:	
Ammonium nitrate (2,100 lb.)	72.00
Labor—56 hr. man and equipment mowing and fertilizing	112.00
Total cost of pasture	184.00
Net profit	218.00

TABLE 2. Yield of Vaseygrass in Pounds Per Acre

No. of plots	Three-year range of yield		Three-year average yield	
	Green	Dry	Green	Dry
24	13613-35392	3745-9736	21312	5863

●

An influx of Praying Mantis insects, first noted in New England following the hurricanes of five years ago, is causing some excitement as few people in this region yet recognize them. The insects are now seen as a friend of the farmer because they kill thousands of flies, spiders, grasshoppers, crickets, locusts, bees, wasps, beetles and even the destructive Japanese beetle, entomologists point out.

Entomologists report that there are about 1,000 species in the world, about 15 are native to the U.S. and of these only a few are found in lower New England. They measure 3 inches to 5 inches long and are camouflaged a light green to harmonize with foliage. They are born in the spring from eggs deposited in the fall, usually on a twig. May sunshine brings out the baby Praying Mantises and they mature in August.

Some farmers in Massachusetts are encouraging the insect, buying the eggs before the middle of May in order to raise their own. Once introduced their cycle of hatching will remain in the area for years. Egg cases are tied to shrubbery in the fields and left to hatch. The insect is becoming widely known here now as a pest controller.

●

All the mystery has gone out of a "mysterious" unhealthy situation in northwestern Ohio soybean fields. In fields where the soybean formerly grew green and thrifty, plants yellowed and yields fell off.

Plant "doctors" from the Ohio Agricultural Experiment Station moved into the diseased fields. Their diagnosis: manganese starvation. Remedy for the trouble, based on research, was a dose of manganese sulfate, sprayed on the foliage. By treating with this chemical, the agronomists were able to increase soybean yields by 5 to 10 bu. an acre. At current prices this would amount to from $10 to $20, yet the cost of spraying runs only about 50¢ an acre.

Plot work with this deficiency disease was conducted at one of the stops on the open house tour of the Northwestern Substation tours here recently. Conducting the research were agronomists D. J. Hoff and H. J. Mederski. Newer ideas in drainage, farm buildings, fertilization of corn and soybeans, interseedings in corn and soybeans and soybean varieties were discussed at other stops along the way.

●

Water at the right time can mean 98 more bu. corn per acre, according to Dr. Henry W. Indyk, agronomist at the University of Delaware.

In three years of experiments on sandy soil plots in southern Delaware, Dr. Indyk increased yields 98 bu. an acre in 1957 and 82 bu. in 1955.

He added 1.5 in. of water whenever the soil dried out to 60% of its water holding capacity.

In 1957, 10.5 in. of water was applied which boosted the yield on the irrigated plots to 108 bu. The unirrigated plots produced only 10 bu. an acre.

In 1955, 7.5 in. were applied to produce a 95 bu. yield per acre. Unirrigated plots produced 13 bu.

In 1956, the experimental plots received rainfall at regular intervals and irrigation was used only three times to put 4.5 in. of water on the plots and the irrigated plots yielded only 8 bu. more. The non-irrigated plots produced 135 bu. per acre and the irrigated plots, 143 bu.

With the proper use of irrigation, water ceases to be the limiting factor in production. Soil fertility becomes a vital element as does plant population. Plant population should be increased and fertilizer rates should be raised if the fullest possible benefit is to be wrung out of the irrigation system.

Nitrogen in particular is often in short supply when soil moisture is adequate. Dr. Indyk tested for the need of additional nitrogen when irrigation is used.

When 30 lb. of nitrogen was applied at planting time the yield was 61 bu. an acre in 1955 and 51 bu. in 1957. When an additional 120 lb. of nitrogen was sidedressed, the yields were jumped to 95 bu. in 1955 and to 108 in 1957. In these two cases, 120 lb. of nitrogen made a difference of 34 bu. in 1955 and 57 bu. in 1957.

Without the irrigation, the additional nitrogen reduced yields from 24 to 13 bu. in 1955 and made no difference in 1957. Together, water and nitrogen, along with other management practices, really make the profit or loss difference in a dry year.

Although impressive, Dr. Indyk says irrigation is not a substitute for good cultural management practices.

An irrigation system has some drawbacks which must be considered in the face of the spectacular yield results of his experiments.

An irrigation system requires close attention and usually during the time when the farmer's time is in great demand. Moving pipe through corn 10 to 12 ft. high is not child's play either, he said.

An irrigation system should be well planned and should be considered as a permanent farm enterprise. It is insurance against drouth and will provide maximum response to improved cultural and management practices and improves quality.

●

It's news to report that the battle against the Dutch elm disease, which has ravaged many New England towns and cities causing loss of historic trees, particularly in Boston and Providence, has been taken to the laboratory, where many entomologists contend it should have started in the first place. Dr. Martin A. Rosinski, assistant professor of botany at the University of Maine in Orono, has just been given a grant by the National Science Foundation to study the fungus that causes the disease.

Efforts to control the disease in New England by spraying and killing the elm bark beetle have been at best a holding action in a losing fight as more and more of the region's giant elms have had to be felled. The beetle is not the culprit, but the carrier which transports the fungus which debilitates the trees, Dr. Rosinski says.

He plans to study the growth of the fungus (Ceratocystis ulmi). It is hoped that his study will find a weak spot in the fungus leading to biological control. All the New England states are tremendously interested in the work to be done. Maine is particularly interested because the value of the elms in Maine has been placed at over $40,000,000.

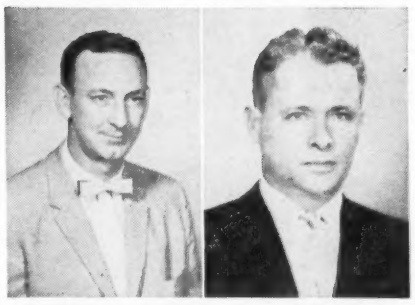
"Considering the disease is spread over more than half of the U.S. and Canada and most of Europe," Dr. Rosinski said, "basic studies on the causal organism which would provide the key to ultimate control of this disease would be worth, literally, many millions of dollars."

Joins Nichols Staff

OKLAHOMA CITY, OKLA.—Russell Pierson, former executive secretary of the Crop Improvement Assn. of Oklahoma, has been made assistant general manager of the Nichols Feed, Seed and Fertilizer Co., Oklahoma City. Mr. Pierson succeeds Fain G. Cesar. The appointment was announced by Harold Hutton, president of the State Board of Agriculture.

SPRAY COMPANY

APTOS, CAL.—The Aptos Spray and Nursery Co. opened here recently. The firm handles agricultural chemicals for farm and garden use. Owners of the company are Austin Hutchison and Richard Barnes.



Joseph W. Floyd Lee J. Slusher

Joseph W. Floyd, Lee J. Slusher Join Grace Chemical Co.

NEW YORK—Grace Chemical Division of W. R. Grace & Co. has announced the promotion of Joseph W. Floyd to the position of Memphis district sales manager replacing C. J. Bown who has resigned.

Mr. Floyd, a graduate of the University of Missouri with a degree in agriculture, joined the Grace Chemical Division in 1954. He was appointed southeastern district sales manager in 1955. Prior to joining Grace, he was the southwest district manager for the Farm Bureau Insurance Co.

Lee J. Slusher will assume the responsibilities previously held by Mr. Floyd, as southeastern district sales manager with headquarters in Tampa, Fla.

Mr. Slusher, a native of Missouri, attended the state university there. He leaves his sales position in the home office of the Grace Chemical Division at Memphis to take up his new duties. Formerly associated with the Vitacraft Co. of Kansas City in a sales capacity, he joined the Grace organization in 1956. Mr. Slusher will reside with his family in Tampa.

Korea and Turkey Issued ICA Grants

WASHINGTON—The International Cooperation Administration has issued $30,700,000 in fertilizer and pesticide authorizations for Korea.

One authorization is for nitrogenous fertilizers to the amount of $23 million, another is $7 million in phosphate fertilizer and a third for $700,000 in agricultural pesticides, with contract period of Sept. 24, 1958 to Feb. 28, 1959.

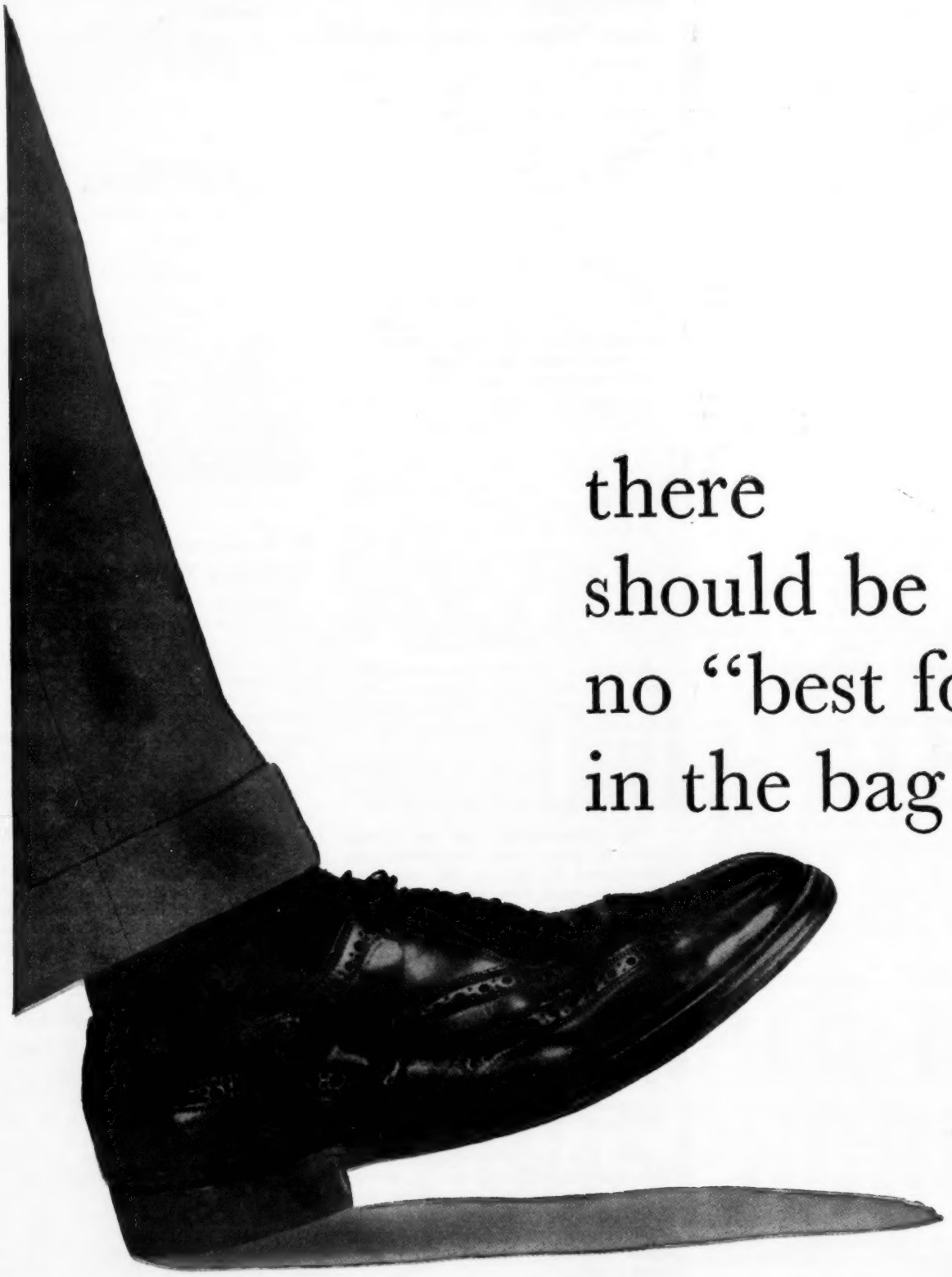
The sources are world wide and the terminal delivery date for all three is June 30, 1959.

Another authorization issued by the ICA of $100,000 in phosphate rock went to Turkey. The contract period is from Sept. 26, 1958 until March 31, 1959. Source was world wide and the terminal delivery date was June 30, 1959.

NAMED AGRONOMIST

LOUISVILLE, KY. — Lawrence Farison has joined Federal Chemical Co. as an agronomist with headquarters at Columbus, Ohio. He is a graduate of Ohio State University.

TRACTOR SPRAYER — Al Kray talks over a day's spray orders with one of his employees at the Kray Fertilizer Co., Anamosa, Iowa. Mr. Kray has placed two large drums on the tractor which enables the machine to travel better and to spray more acreage between refills.



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North Carolina Soil Fertility Programs Subject of Southeastern Conference Talks

ATLANTA—An 11% increase in fertilizer sales was recorded in Hoke County, N.C., this past year despite a 40% acreage reduction in cotton—the county's most important fertilizer-using crop. Scotland County, N.C., is just beginning its "big test" looking toward the 1958-59 season, but with the enlightened leadership and community enthusiasm, there seems to be no reason why this county can't equal or exceed the Hoke County record.

How these two communities have organized their soil fertility programs will be principal topic for discussion at the Third Annual Southeastern Fertilizer Conference, Oct. 29-30, at the Atlanta-Biltmore Hotel here. Invitations to attend the conference have been extended to representatives of all fertilizer manufacturers doing business in the Southeast, as well as to key personnel of agricultural colleges in the area.

Another top feature of the business session will be the appearance of F. E. Hartzler, a merchandising expert. Mr. Hartzler is merchandising specialist at Emporia State Teachers College, and a consultant for several industrial firms and business organizations. His topics will be "Merchandising—A Key to Successful Business."

Rounding out the program will be discussions by Dr. Russell Coleman, NPFI executive vice president, and Dr. R. L. Beacher, NPFI southwestern regional director. Dr. Beacher will speak on "Soil Testing—A Guide to Better Fertilization Practices," and Dr. Coleman will report on the NPFI program for the southern states. J. H. Epting, Epting Distributing Co., and chairman of the Institute's southeastern industry advisory committee, will preside.

Both Hoke and Scotland County projects were spontaneously organized by the local agricultural leadership in an effort to bolster farm income. They are being supported by farmers, local businessmen, and community organizations. County agents have taken the lead in each case with advice and assistance supplied by specialists from North Carolina State College. The NPFI, through its southeastern regional office, also is cooperating in the programs.

At the conference, a panel of local leaders will describe how the programs were developed. Representing Hoke County will be W. C. Williford, county agent, and T. B. Upchurch of the Chamber of Commerce. Clyde L. Stutts, executive vice president, Commercial State Bank of Laurel Hill, and W. M. Campbell, Dixie Guano Co., will represent Scotland County. The moderator will be Dr. J. W. Fitts, head, department of soils, North Carolina State College.

The session will get under way Wednesday evening, Oct. 29, with an informal mixer. The business session will occupy the morning of Oct. 30. The NPFI's southeastern regional advisory committee will meet in the afternoon, Oct. 29, and the southeastern regional research and education committee will meet in the afternoon on Oct. 30.

Concurrent meetings of the southern soil research committee and the southern extension agronomists will convene on Oct. 30, and continue on Oct. 31. Dr. D. A. Hinkle will be chairman of the soils session and G. H. Enfield of the agronomists' meeting.

Reservations for the meeting should be made directly with the Atlanta-Biltmore Hotel.

Automatic Potato Growing Discussed

DAVIS, CAL.—The use of gibberellic acid on potatoes to speed sprouting and the use of maleic hydrazide to inhibit growth could possibly be utilized by the farmer to start and stop his potatoes almost whenever he wanted to, said Herman Timm, vegetable specialist, at the vegetable crops Field Day at the University of California's Davis campus.

Some 250 visitors at the Field Day heard Mr. Timm say that proper use of the chemicals could help the grower produce a better crop and allow him to store it in the soil for a long period.

He said the cost of applying gibberellic acid (at a concentration of one part per million) might vary from 10 to 40¢ an acre, while the maleic hydrazide (at 3,000 ppm) could cost as much as $30 an acre if sprayed on plants by airplane.

Mr. Timm warned that careful treatment with both substances was necessary to derive their full benefits. He said maleic hydrazide should be applied to plants 2 to 3 weeks before their death—normally 90 to 100 days after planting—and that potatoes treated with gibberellin should be planted within a week of the application.

Mr. Timm showed the Field Day visitors a plot on which potatoes from seed grown in Kern County and treated with 5 and 10 parts per million of gibberellic acid had much better growth, and grew more evenly than potatoes in an untreated check plot.

Further tests on the application of these growth regulators to commercial crops—and on their reaction to each other—will be made, Mr. Timm said.

Minnesotans Study Plant "Social Structure"

ST. PAUL—Agricultural scientists at the University of Minnesota are launching some major basic research on how well different plants get along with each other.

Plant scientists Thor Kommedahl and A. J. Linck will study mutual relationships—both good and bad—between certain grasses and other important plants. The work will be done under an $88,000, 5-year grant from the Rockefeller Foundation.

"You might call this a study of plant 'social structure,'" Drs. Kommedahl and Linck explain. They are concerned with four kinds of interrelationships among plants:

- Effects of "higher" plants—such as field crops—on each other.
- Effects of higher plants on soil microorganisms—whether these effects involve stimulation or inhibition of the microorganisms.
- Effects of "lower" plants—such as plant disease organisms—on crop plants, other than the effects of the disease itself. For example, they will study whether grain rust organisms do anything to the grain plant other than produce the rust lesions.
- Effects of certain microorganisms on other microorganisms. This would include effects of plant disease organisms on soil bacteria, for example.

Research workers in agricultural biochemistry will help in isolation of factors that produce these effects.

Dr. Kommedahl and Dr. Linck already have some important information to go on. Dr. Kommedahl learned two years ago that quackgrass has a harmful effect on soil. Alfalfa didn't grow well on soil that was infested with quackgrass the year before. But the scientists still haven't found out just what causes this toxic effect from quackgrass. Is it some substance that directly inhibits other crops? Or is the effect indirect—a result of soil microorganisms, necessary to good legume growth, being inhibited?

Such are the questions the scientists will investigate among several important crops and microorganisms. Although the studies will involve fundamental research, the findings could eventually have important practical value.

MUNSON REPRESENTATIVE

UTICA, N.Y.—Lasher and Schaub Associates has been appointed by the Munson Mill Machinery Co. here as an exclusive sales representative for the firm in the state of New York, except the metropolitan area, according to T. Alun Powell, sales manager.

S. E. Ainsworth

S. E. Ainsworth Named To Geigy Sales Post

YONKERS, N.Y. — Geigy Agricultural Chemicals, Division of Geigy Chemical Corp., has named S. E. Ainsworth as sales representative for the states of Illinois and Iowa. He will be located in Chicago and will work under the supervision of Haskell Tison, district sales manager.

Mr. Ainsworth formerly was employed in the New York office of the Dow Chemical Co. where he was responsible for the promotion of farm and industrial herbicides, fumigants, and other pesticides.

Born and raised in Iowa, he received his B.S. degree in Horticulture from Iowa State College in June, 1955. In his new capacity at Geigy, he will contact and service agricultural chemical accounts.

Agricultural Grants-in-Aid To Be Sponsored by Climax

NEW YORK—An agricultural research program of grants-in-aid totaling nearly $20,000 will be sponsored in 1958-1959 by Climax Molybdenum Co., a division of American Metal Climax, Inc. In announcing the program, William M. Stilwell, manager of agricultural sales and development, reported that this includes work at six universities and two independent research foundations.

Laboratory tests and field trials will be designed to gain insight into the crop response to molybdenum on various specific soils, and also the degree of response of these crops when seed-treated with molybdenum. Included in the latter area of research will be special germination studies. Crops which are expected to figure prominently in experiments during the year are alfalfa, peanuts, soybeans, pasture crops and coffee.

The following colleges and universities will receive the grants-in-aid: University of California; University of Georgia; Oregon State College; Purdue University; Rutgers University; University of Wisconsin; Southwest Agricultural Institute of San Antonio, Texas, and IBEC Research Institute of New York.

Nursery Gets Contract for Air Force Academy Work

COLORADO SPRINGS, COLO. — The Ray Mathews Nursery, Inc., here, with low bid of $223,170.95, was awarded contract for irrigation, fertilizing and top soiling of the academic area at the U.S. Air Force Academy here recently.

Included in the work will be 23.7 acres of seeding and fertilizing, irrigation pipe-laying, sprinkler system installation, drains and other items. Other bidders were Carman-Greene Site Corp., Colorado Springs; Mullermist Irrigation Co., Illinois; D. W. Falls, Inc., Albuquerque, N.M.

Atomic Chemical Names New Western Salesman

SPOKANE, WASH. — Atomic Chemical Co., newly-formed firm producing fumigants and sprays for grain storage insect control, announces the appointment of Joe L. Kirk as exclusive representative for the Pacific Northwest.

A. B. Delaney, firm president, made the announcement from St. Louis, Mo., coincident with the arrival of the first carload of the company's complete new line of formulations for insect control in commercial and terminal country grain elevators and on-farm storage.

Atomic Chemical's sprays and fumigants are formulated specifically for the Pacific Northwest, according to Mr. Delaney.

OLDEST AND YOUNGEST—Justin Potter, left, new president of Virginia-Carolina Chemical Corp., congratulates two stockholders for their attendance at the recent Annual Stockholders Meeting held here recently. Perry Bradley was the oldest stockholder present and he is holding Christopher Long, the youngest shareholder in V-C.

Scientist Attempts To Discover Secret Of Fat on Insects

ITHACA, N.Y.—Hoping to contribute to the advancement of medical science or biochemistry, an agricultural professor has set out to learn what happens to fat in the tiny insect.

Dr. Roger Young of the New York State college of agriculture at Cornell University wants to solve the mystery that surrounds an insect tissue called the "fat body."

Other animals, including humans, store fat throughout their bodies, but insects hoard it chiefly in one place. And science has no idea how insects break it down and transform it into energy.

Also, scientists know this "fat body" has other functions besides storing fat, but they don't know what these functions are.

Dr. Young, although promising nothing, believes that information he uncovers may eventually contribute to the understanding of some human ailments. What's more, he may turn up something related to the aging process which is now commanding much medical attention.

The U.S. Public Health Service has granted Dr. Young $34,500 to conduct his experiments.

Dr. Young's subjects in early experiments are the American cockroach and the wax moth. The cockroach was picked because there are lots of them around and they're easy to examine.

The professor is interested in the wax moth because of this insect's curious habit of raiding beehives and eating the wax.

What makes these and other insects ideal for scientific experiments is their short life cycle. Dr. Young says he can take them in the egg stage and get a chemical history on their whole life.

Dr. Young's first step is finding out precisely what fats are contained in this mysterious "fat body."

Then he'll take an insect tissue and add fatty acids similar to those already in the insect. It's likely, the scientist says, that these acids are similar to those found in soap, vinegar, and butter.

When the acids are added, scientists can then determine how they are utilized by insect enzymes.

North Carolina Fertilizer Sales Register Slight Fiscal Drop

RALEIGH, N.C. — Fertilizer sales in North Carolina for the fiscal year ending June 30, 1958 were just slightly less than those for the the previous fiscal year, reported the North Carolina Department of Agriculture.

Total sales reached 1,414,442 tons on June 30, 1958 compared with 1,416,776 tons for the preceding fiscal year.

Mixed grades made up most of the total tonnage, with 1,162,272 tons being sold. Material sold totaled 252,078 tons. Grade 5-10-10 was by far the most popular, with 374,715 tons sold, or more than the entire amount of materials sold.

Most popular material was ammonium nitrate lime mixtures with 96,879 tons sold.

T. F. Fricke Joins Crag Agricultural Chemicals' Staff

NEW YORK — Union Carbide Chemicals Corp. has announced the appointment of T. F. Fricke to the Crag Agricultural Chemicals staff at White Plains, N.Y.

Mr. Fricke graduated from Cornell in 1955 with a bachelor of science degree in agriculture.

He will be active in development and sales of Union Carbide's Sevin insecticide, which the company expects to market next year on a commercial basis, a spokesman said.

Accident Prevention School Plans Revealed

WASHINGTON — The Southwest accident prevention school for fertilizer plant supervisory personnel will be held at the Sheraton-Terrace Motor Hotel, Austin, Texas, Nov. 13-14, announced Paul T. Truitt, executive vice president of the National Plant Food Institute.

The two-day school is sponsored by the fertilizer section of the National Safety Council and NPFI.

Director for instruction is Glenn C. Peterson, instructor in supervision for the University of Kansas extension and the Kansas State board for vocational education. A. I. Raney, safety director, Phillips Chemical Co. and a member of the fertilizer section of the National Safety Council, is in charge of the school.

Speakers and the topics for the school are:

Nov. 13, 8:30-9:00 a.m., registration; 9:00-9:20, welcome and introductions, Mr. Raney and George F. Dietz, chairman, fertilizer section, National Safety Council; 9:20-10:00, opening of work course under direction of Mr. Peterson, "Safety: Principles of Management and Human Relations"; 10:00-10:15, coffee in the Conference Room; 10:15-11:00, "The Supervisor's Responsibility for the Safety and Health of His People," Mr. Peterson; 11:00-11:45, "Selling Safety—It Hurts to Get Hurt," Mr. Peterson; noon, group luncheon; 12:45-1:15 p.m., "The Importance of Good Job Instruction," John Gallagher, staff representative, fertilizer section, National Safety Council; 1:15-3:00, "How to Teach Safety—Training in Safe Work Habits," Mr. Peterson; 3:00-3:15, coffee and cokes in Conference Room; 3:15-4:00, "Planning Safety Meetings," Mr. Peterson; 4:00, questions and announcements.

Nov. 14, 9:00-10:00 a.m., "Conducting Safety Meetings," Mr. Peterson; 10:00-10:15, coffee in Conference Room; 10:15-11:45, "Putting the Thoughts Together," Mr. Peterson; noon, group luncheon; 12:45-1:15 p.m., "Maintaining Good Order for Safety," W. C. Creel, safety director, North Carolina Department of Labor; 1:15-3:00, "Practice in the Use of Accident Prevention Tools," Mr. Peterson; 3:00, questions, final remarks, and adjourn.

For information on room reservations and fees write to Dr. Robert L. Beacher, Southwestern Regional Director, National Plant Food Institute, Route 8, Township Road, Fayetteville, Ark.

Dick Topper, Bill Cooper Join F. E. Myers & Bro.

ASHLAND, OHIO — Dick Topper, former public relations manager for the F. E. Myers & Bro. Co. here, has been promoted to advertising and sales promotion manager, E. M. Myers, vice president in charge of sales, announced.

Bill Cooper, former assistant public relations manager, has been promoted to public relations manager, Mr. Myers said. He will work under the direct supervision of J. C. Myers, Jr., vice president in charge of industrial and public relations.

Mr. Topper was graduated from Ashland High School in 1945 and Ashland College in 1950 with an A.B. degree, majoring in radio broadcasting. He started with Myers in 1952.

Mr. Cooper entered Bowling Green State University following graduation from Ashland High School in 1953. Majoring in public relations, he was graduated in June, 1957, with a Bachelor of Science degree in Journalism. He started working at Myers also in June, 1957.

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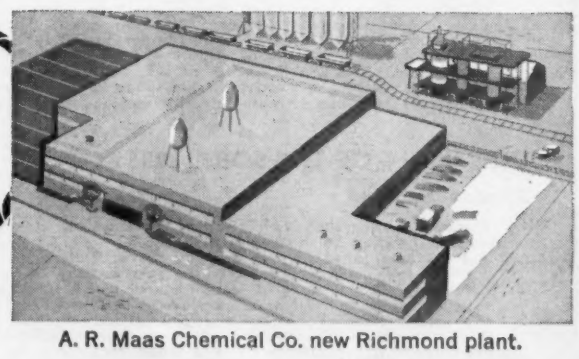
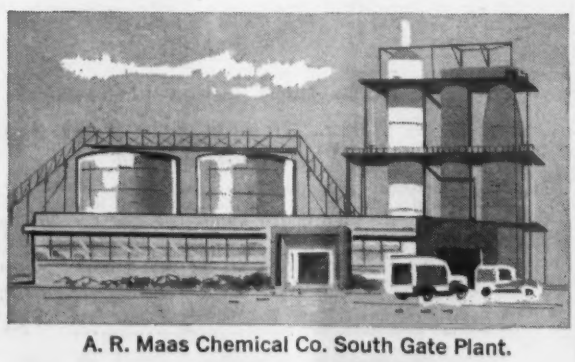


A. R. Maas Chemical Co. new Richmond plant.



A. R. Maas Chemical Co. South Gate Plant.

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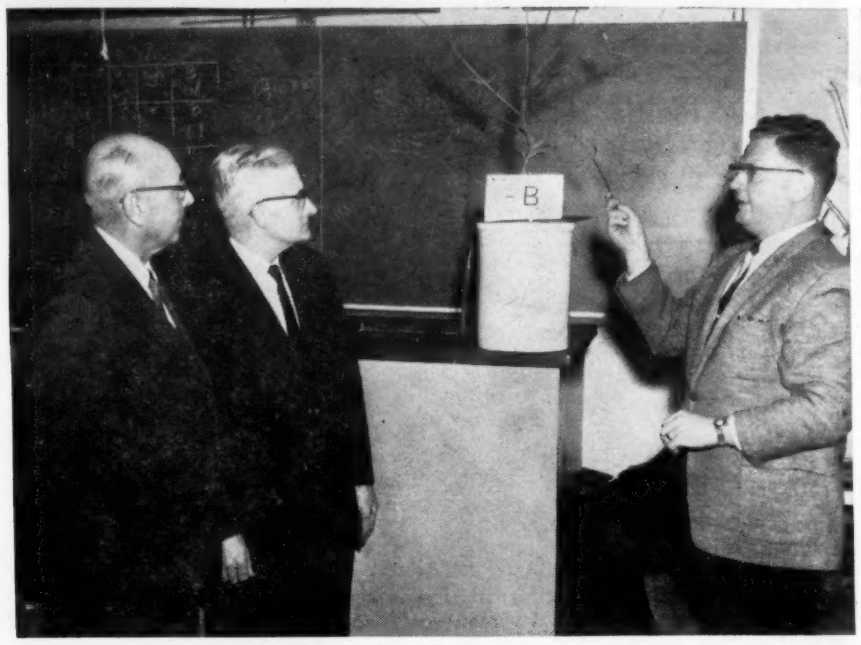

RUTGERS CONFERENCE—Graham Campbell (left) of Chamberlain & Barclay, Cranbury, N.J., and Henry Fallon of the Farmers' Co-op, Trenton, N.J., see what happens to a boron-starved peach tree. Dr. Norman F. Childers, head of the Department of Horticulture at Rutgers University, was among speakers at the annual New Jersey Fertilizer Conference held at Rutgers University in New Brunswick.

NEW JERSEY CONFERENCE

(Continued from page 1)

either of his two most important crops.

Not surprising was the fact that the "high user" group differed in most respects from those in the other groups: higher gross income, more machinery and equipment, more livestock and poultry, higher per acre income, larger farming operation and higher level of intelligence.

Taking a closer look at the higher per acre income of high fertilizer users, Dr. Garman showed that the average gross income per acre of crop and pasture land in 1956 was $93.54 for the high fertilizer users, and only $55.98 for the low fertilizer users. The regional total was $67.69 of income per acre. Farmers who used no fertilizer at all on their two major crops averaged only $43.93 per acre.

Also, as to levels of intelligence, high level users made better scores than low level users when asked specific questions based on grade and price, and soil test information. One of the observations in the over-all report was to the effect that the current terminology which "names" a particular fertilizer with a set of three numbers has the same clarity to the uneducated farmer as a message in code, Dr. Garman said.

A related observation was to the effect that this farmer needs accurate and helpful information from sources which he sees as being practical—sources regarded as being familiar with his problems.

This farmer also needs help in judging results from the use of fertilizer so he can view fertilizer as a known factor in production instead of a known cost with unknown, and therefore, unpredictable effect, the survey noted.

As to the value of demonstrations in the Northeast, the data collectors found that 79% of farmers did not know of the location of any demonstration plots, and 73% had never visited a field demonstration. Yet 68% replied that demonstrations can have a good or positive effect in making one think or in leading one to take action.

Of the farmers who read about demonstrations, only 18% thought their reading had led to further action, while 23% reported that reading was helpful although it did not result in direct action. Another 42% said their reading left them "neutral."

Several members of the experiment station staff reviewed current research projects in soils, horticulture, farm crops and dairying.

Dr. William H. Martin, dean of the college of agriculture and director of the experiment station, commented on the results of excellent growing conditions in New Jersey this year. He singled out tomatoes. Several years ago a "Ten-Ton Tomato Club" was established to recognize growers who produced 10 tons or more of high quality tomatoes to the acre. But 10 tons to the acre is getting to be so commonplace, he said, that he is convinced that a 20-Ton Club would be more in line with changed conditions.

On the other hand, the state's potato growers are in bad shape as they try to make their heavy out-of-pocket expenses balance the $1.20 100 lb. that they are able to get for their potatoes.

Dr. Martin called attention to the expanded research and extension program at Rutgers, going far beyond the concept of showing how to increase production. The enlarged program follows the crop from production all the way through to the consumer.

Dr. Stacy B. Randle, state chemist at the New Jersey experiment station, arranged the program and presided.

Books on Soils and Soil Management

SOILS AND FERTILIZERS—Fourth Edition

Firman E. Bear

Covers in detail: soil chemicals, important soil elements such as nitrogen, phosphorus, calcium; yield prospects of crop plants, moisture control, soil management; mechanical operations; soil conservation; organic matter maintenance. New facts, accurate figures.
66 illustrations, 420 pages $6.00

SOIL FERTILITY (1955)

C. E. Millar, Professor Emeritus of Soil Science, Michigan State College

A fundamental treatment of the principles of fertility in the soil, with major emphasis on the plant itself. Relevant aspects of soil chemistry, soil physics, soil microbiology and plant physiology from viewpoint of their infuence on plant growth. Each major plant food element and the more important micro-nutrients fully treated with respect to supply in the soil, sources and amounts of additions, losses from the soil, functions in plant growth and plant symptoms of deficiency. Covers all sections, with considerable space to saline soils and soils of southern latitudes $6.75

CHEMISTRY OF THE SOIL (1955)

Firman E. Bear

Presents a comprehensive picture of the chemical aspects of soils in relation to their development, present constitution and the uses to which they are put. Covers: chemical composition, soil, colloids, organic matter relationships, oxidation-reduction phenomena, acid, alkaline and saline soils, plant nutrition, nutrient fixation, trace element chemistry, root and soil relationships. Scientists engaged in soil research will find useful data directly applicable to their investigations. Food chemists, manufacturers and those manufacturing liming materials, fertilizers, soil conditioners, surfactants, wetting agents, insecticides, fungicides and other agricultural chemicals will gain new ideas for future product research and development. 384 pages $8.75

SOIL PHYSICS—Third Edition (1956)

Dr. L. D. Baver, Director Experiment Station, Hawaiian Sugar Planters Association

This represents a considerable revision of the earlier versions and incorporates many ideas communicated to the author by soil scientists all over the world. Two new chapters on the principles of soil irrigation and drainage, discussion on soil puddlability, effect of chemical soil conditions on soil structure, and recent contributions of the diffusion process in soil aeration, and information on hydraulic conductivity, soil moisture stress and plant growth, the importance of compaction on soil tillage, and wind erosion processes. 489 pages $7.75

SOILS AND SOIL MANAGEMENT

A. F. Gustafson

A complete study of soils; physical properties, soil, organism, organic matter, relation of water, control of water, tillage, erosion, acidity and its control by liming, management of alkali soils, nitrogen and its importance to the farmer, production, conservation and utilization of farm manures, production and utilization of green manure crops; fertilizer materials and their effects on soils; crop rotations; fertilization and long-term maintenance of productivity of mineral soils. Published 1941.
424 pages, illustrated $6.00

SOIL SCIENCE SIMPLIFIED

Helmut Kohnke

A concise textbook dealing with basic concepts of soils. Much useful information for students in agriculture, farmers, fertilizer salesmen, etc.
68 pages, paper bound $1.00

IRRIGATED SOILS: Their Fertility and Management—New 1954—Second Edition

D. W. Thorne and H. B. Peterson, Department of Agronomy, Utah State Agricultural College. Dr. Thorne is also Chief of Soils and Fertilizer Research Branch, Tennessee Valley Authority

An outstanding text dealing with the problems of irrigated regions. In addition to the chapters dealing with irrigation, the salt problem, reclamation of saline and alkali soils, there are chapters on maintaining organic matter in soil, minerals and plant growth, fertilizer elements and fertilizer materials, using fertilizers, soil management for general field crops, for fruit, vegetable and specialty crops... $7.00

THE RESPONSE OF CROPS AND SOILS TO FERTILIZERS AND MANURES (1954)

W. B. Andrews

A new book, with special reference to Anhydrous Ammonia and other sources of nitrogen in liquid form. Deals also with legumes as a source of soil nitrogen, and the uncertainty of green manures; the response of soil to phosphorus, potash and soda; the effect of fertilizers on yield and feeding value of hay and pasture crops.
468 pages, 19 chapters, 89 illustrations $6.00

CHEMICALS, HUMUS AND THE SOIL

Donald P. Hopkins

The theme of the book is the necessity of chemical fertilizers to maintain the fertility of the soil. It has concise information on which soil conditions and which chemical fertilizers are most suited for special crops and vegetables. Space is devoted to cereal crops, barley, wheat, oats and rye; to roots and tubers, sugar beets, potatoes, carrots, parsnips and turnips; to vegetable crops, beans, peas, alfalfa, lupines; to grasses and clovers; to onions, flax, kale, cabbages, lettuce, tomatoes, celery, cauliflower and fruits. It clarifies the relationship of manures, compost and chemicals as fertilizers and points out how chemicals should be used to obtain the best results. Its philosophical soundness and logic should do much to avert the confusion of thought introduced by the advocates of compost and manure as against the use of chemical feritlizers..... $8.50

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PCA Names Representative For Overseas Market

WASHINGTON — International Ore and Fertilizer Co. of New York will represent Potash Company of America, Ltd., in Japan, Australia and New Zealand, announced John W. Hall, vice president of PCA.

Mr. Hall made the announcement following his return from a trip to Europe and Japan. The purpose of the trip, Mr. Hall said, was to investigate the world market and to select a representative to sell a portion of his company's Canadian production of potash in the export market.

GARDEN SUPPLY STORE

SACRAMENTO, CAL. — The Diggin's, handling garden supplies and a variety of agricultural chemicals, opened here recently. The garden supply store is owned by Donald Smith and Douglas Fishel.

Special Merchandising Section

Better Selling

Marketing News and Features

Results of 3-Year Efficiency Project Viewed at Field Day

HILLSBORO, ORE.—About 200 producers, dealers and manufacturers attended a recent field day here to review the results of a three-year project on the Lennox Blatchford farm.

Called the "Oregon Grassland Demonstration Farm," the project is sponsored jointly by the Pacific Northwest Plant Food Assn., Oregon State College, the Agricultural Stabilization & Conservation Committee, the Farmers Home Administration, the Soil Conservation Service and the Washington County Extension Service. (See Croplife, Dec. 17, 1956, page 9.)

The objective of the project, according to Plant Food group, is to show maximum forage production and most efficient use by:

1. Proper fertilizer and lime.
2. Pasture management, rotation grazing, etc.
3. Planting the best producing plants.
4. Proper irrigation.
5. Efficient use by livestock.
6. Herd management and selection of good cows.

The Blatchford Farm consists of 73 acres, 60 of which are in crop land and 13 in waste, brushland, building sites, roadways and to the middle of the Tualatin River. At the beginning of the project, there were 38 milk cows, 2 brood sows, and 12 sheep. After one year there were 40 milk cows, 15 pigs and 19 sheep.

Production figures revealed at the field day were:

Production

	1955	1956	1957	1958
Grain (ton)	2.2	6.2	..	9.5
Hay (ton)	31	50	35	25
Silage (ton)	125	150	250	250
Pasture (mature cow day equiv.)	8,569	8,012	10,502	10,145
Acres in project ..	60	60	60	60
Acres in production	60	60	51	60

The demonstration started in 1956. During 1955, all the land was in production. In the spring of 1956, approximately 27 acres were reseeded to new pasture. Some silage and a limited amount of late pasture were obtained from these fields. They were not in full production.

In 1957, no production was obtained from 9 acres. The fields were seeded to alfalfa.

In 1958, six acres were in grain. The 1958 pasture figures may be higher, depending on how late in the fall the cattle are pastured.

Estimated production in total digestible nutrients showed:

Estimated Production in TDN

	1955	1956	1957	1958
Hay	31,000	50,000	35,000	25,000
Silage	42,500	51,000	85,000	85,000
Pasture	85,690	80,120	105,020	101,450
Total TDN from forage	159,190	181,120	225,020	211,450

Production was converted to total digestible nutrients at the following rates: hay—50%, silage—17%, pasture—10 TDN per cow day.

The estimate from pasture production in 1958 is probably low in relation to the other years, the plant food group commented. The season may be longer than indicated. Also, the cattle were on pasture both day and night this year. In previous years they were on during the day only.

The Blatchford Farm is one of three projects conducted by the plant food group. The first of these projects took place on a Washington farm and was completed late in 1956.

The other project, which was completed in 1957, took place on an Idaho farm.

Results of the previous demonstrations were termed as "tremendous." In the case of the Idaho farm, for example, increase in hay production amounted to one-third after only one year and carrying capacity of the pastures increased two and a third times.

At the Washington project, huge gains in silage production, size of cattle herd and butterfat averages were recorded.

After only one year on the Blatchford Farm, Mr. Blatchford was ready to say, "The fertilizer program really made a difference. There is no question but that I will continue with it after the project is completed. We're sold."

Further results of the Blatchford Farm project are to be given at the Pacific Northwest Plant Food Assn. convention at Gearhart, Ore., Oct. 22-24 by Palmer Torvend, Washington County extension agent.

CALIFORNIA NURSERY—Stewart Wade (right), co-owner of the Orchard Nursery in Lafayette, Cal., sells two of the fertilizers handled by the store to a customer. Relocation and enlarging of the company brought extra profits and customers.

Highway Development Forces Move: Bigger Store, Larger Profits Result

In 1955, a highway development program at Lafayette, Cal. threatened to wipe out the nine-year-old Orchard Nursery. Instead, it brought about the nursery's relocation a short distance from the old site with an extensive expansion of the firm's facilities.

Located at 4011 Mount Diablo Blvd. in a little valley, the nursery is owned and operated by Jack Schneider and Stewart Wade who decided to move their small store back 600 ft. from the proposed highway rather than abandon the building. When the move was completed, they began construction to enlarge their operation, now double that of the old store.

Yearly sales amount to $200,000 with 10 to 14 people employed in the business. The nursery, farm and garden supply store, florist shop, hothouses, and lawnmower repair shop cover two acres. An asphalt parking lot in the front of the store accommodates 48 cars.

The store itself covers 2,000 sq. ft. of floor space and is made of knotty pine with a concrete floor. Windows on three sides along with six sets of double fluorescent fixtures illuminate the displays. Three offices and a completely outfitted lunchroom are located in a section of the store directly behind the main counter. Sales breakfasts are held about twice a month in the lunchroom to discuss new products and sales programs.

An unusual and extremely functional feature of the store is a covered porch running the length of the store front. Bulky articles such as large bags of fertilizer and peat moss are stored on the porch for easy delivery to customers' cars.

Shelves against two walls in the store hold sprays, dusts, lawn seeds, fertilizers and lawn food. Many well known brands are represented. Floor displays also include products for the lawn and garden along with hand tools, spray cans, sprinklers and garden hose. About half of the store's end wall is given over to an arrangement of larger lawn and gardening tools such as rakes, hoes, shovels and forks. The wall shelves and tool display are well lighted by a series of fluorescent fixtures running beneath the 15 in. wide top shelf.

In order to meet special conditions in the area, lawn seed and African Violet soil mix and food are put up and sold in the store under the ORNU (ORchard NUrsery) label. Large bales of peat moss are sold also under the ORNU brand to standardize price in the area.

The nursery specializes in African Violets along with other quality indoor plants for homes. Three hothouses near the main building are used for displaying and growing the violets. Approximately 400 varieties are grown there and hybridized species are sold all over the world. One of the hothouses is used to display the violets in many metal and glass fixtures.

An attractive gift shop is located between the main store area and the adjoining florist shop and greenhouse. Glassware and metal containers for garden and home flower arrangements are displayed there. Articles in this low ceiling section are well lighted by five spotlights in the ceiling. The colorful glass and metal products are arranged on wall shelves and tables that are placed both inside the section and through the large hallway connecting the greenhouse to the store. This department has been popular with customers and has specialized in quality though not necessarily expensive merchandise. "You have to have things that are different, unusual and nice for such a department in a nursery," said Mr. Wade, "and we have tried to do just that."

The combination florist shop and greenhouse has flowers and plants displayed on a number of wrought iron tables and shelves. Plants, popular with home owners in the firm's distribution area covering Orinda, Lafayette, Walnut Creek and Moraga, are changed frequently along with the flower arrangements in the greenhouse.

A fountain and pool within a raised

(Turn to MOVE, page 12)

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Dealers in the West may do well to keep their eyes on a relatively new practice—that of fertilizing rangeland by dropping nitrogen pellets from aircraft.

Chester Perry, Los Angeles County (Cal.) farm adviser, says this practice may be a key factor in helping the livestock man maintain his profit margin.

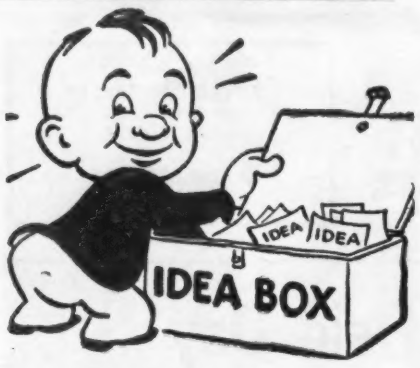
Mr. Perry predicts the practice will increase in California and he believes it will be a profitable venture in nine out of 10 cases.

Mr. Perry, reporting on a controlled program in the Newhall District the past two seasons, had these comments:

"This is a way of developing an important natural resource. It could double livestock production in California in the next 10 to 15 years without a doubt, if we need it.

"It's a way for the livestock farmer to increase his enterprise, to maintain the income to meet rising costs."

Mr. Perry added, however, that fertilization must be followed by good range management. The area treated has to be stocked at a higher rate than normal so the forage will be consumed if the undertaking is to realize its full potential.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6810—Pesticides Booklet

"Your Ready-Reference Guide to Dependable Diamond Weed and Brush Killers for Effective, Easy, Economical Weed and Brush Control" is the title of an illustrated, 12-page booklet just issued by the Diamond Alkali Co. Briefly reviewed in this catalog are the Crop Rider, Fence Rider, and Line Rider groups of Diamond herbicide formulations. Application areas suggested in the booklet include farms; highways, secondary and rural roads; public utility lines; railroad, pipeline and other rights-of-way, and factory sites, plant grounds and other industrial areas. Check No. 6810 and mail for details.

No. 7165—Bagging Scale Bulletin

The Richardson Scale Co. has published a bulletin describing its E-50 automatic bagging scale. The six-page, two-color bulletin, with illustrations and cut-away line drawings, details the E-50's design, capacities, gravity or power feed operation, and discharge. In addition, the bulletin contains engineering drawings, illustrations of suggested feeding arrangements and descriptions of accessories. Standard specifications and optional features are outlined, along with the E-50's ability to handle a variety of materials. A copy of the bulletin may be obtained by checking coupon No. 7165 and mailing to Feedstuffs.

No. 6811—Turfgrass Manual

A guide to fertilizing various turfgrass areas, entitled "Superintendents' Turfgrass Manual" has been published by Nitroform Agricultural Chemicals. The booklet contains a chart on the "Range of Nitrogen Feeding" and also information on supplemental feeding. For details, check No. 6811 and send to this publication.

No. 6814—Adjustable Pump Data

Operating data on the ACAP pump for handling liquids or hygroscopic solids in suspension under variable capacity and head requirements are contained in new literature released by Allis-Chalmers. Standard requirements of the ACAP pump as compared to a standard pump with valve controlled discharges are noted in the bulletin, which includes range and power savings charts. For more information, check No. 6814 on the coupon and mail.

No. 7118—Bagging Scale

Burrows Equipment Co. has announced a new bagging scale. Known as Model No. 700, the scale occupies an area 18 in. square. It can be attached quickly to a feed mixer, bin

or hopper, and it will bag at the rate of six to eight bags a minute and the bag clamp is designed to hold paper, burlap or cotton bags of 50 to 100 lb. capacity. The weigh beam is built into the back of the scale. For details, check No. 7118 on the coupon and mail it to Croplife.

No. 6813—Revised Products List

A newly revised chemical products list titled "Hooker Chemicals," has been published by Hooker Chemical Corp. The bulletin contains five chemicals which have recently been made available for general sale on a commercial scale. A description, chemical formula, physical data, uses and types of shipping containers are detailed for each of the 65 chemicals listed. Check No. 6813 on the coupon and mail for details.

No. 6803—Air Shipments

ParcelAir, a method of shipping fertilizer and farm chemicals by air with one to three-day service, has been started by American Shippers, Inc. The service will ship packages of any dimension up to 40 lb. anywhere in the U.S. For further details check No. 6803 on the coupon and mail it. Please print or type name and address.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6805—Tree Control Bulletin

Michigan State University is offering information on controlling insects and disease on ornamental trees. The bulletin was compiled by the entomology, horticulture and botany and plant pathology staff members at MSU and it lists descriptions of pests and their injuries on about 25 different trees. Recommendations for kinds of control materials to use are also included. Interested persons may write to the Cooperative Extension Service Bulletin Office, Michigan State University and ask for bulletin No. E269.

No. 6797—Tractor-Shovel

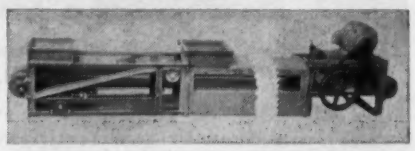
The Frank G. Hough Co. has announced a new four-wheel-drive, rubber-tired tractor-shovel with 7,000 lb. carry capacity, the model H-70. The loader will replace the model HH Payloader. Company officials say that features of the new H-70 include more power, more traction, stronger components, greater protection against dirt and dust, more efficient torque-converter, complete power-shift transmission, power-transfer differentials, power-steering, pry-out bucket action, safety boom arms, power-boosted brakes and numerous refinements. New gasoline and diesel engines provide from 105 to 110 h.p. Diesel engines are available in either 2- or 4-cycle types. Secure details by checking No. 6797 on the coupon and mailing it to Croplife.

No. 6809—Safety Wall Chart

A large safety wall chart providing instructions for the proper handling of chlorate and perchlorate chemicals has been prepared by American Potash & Chemical Corp. for companies active in chlorate and perchlorate application. The wall chart contains a digest of safety rules and conduct. It includes such subjects as: materials that may ignite if mixed with chlorates or perchlorates, what types of clothing to wear and how to care for clothing when working with chemicals and other subjects. Check No. 6809 and mail for further details.

No. 7191—Trough-Belt Conveyor

The Universal Hoist Co. announces a new conveyor designed for all fine free-flowing material in capacities up to 2,750 cu. ft. per hour. The con-



veyor has a 12-in. belt which is pulled through a formed steel trough at up to 500 ft. per minute. Called the Model K, it has a reversible motor and can be run in either direction. More details can be obtained by checking No. 7191 on the coupon and mailing it. Please print or type.

No. 7193—Vacuum Barrel Handler

A barrel handling unit, attached to a fork lift truck and capable of lifting four 55-gal. steel drums each weighing 490 lb., has been designed and produced by Vac-U-Lift Co. The source of power for this unit is a

Send me information on the items marked:

- ☐ No. 6795—Product News Sheet
- ☐ No. 6797—Tractor-Shovel
- ☐ No. 6803—Air Shipments
- ☐ No. 6805—Tree Control Bulletin
- ☐ No. 6806—Weed Killers
- ☐ No. 6807—Handbook
- ☐ No. 6808—Chemical Folder
- ☐ No. 6809—Wall Chart
- ☐ No. 6810—Pesticides Book
- ☐ No. 6811—Turfgrass Manual
- ☐ No. 6813—Revised List
- ☐ No. 6814—Pump Data
- ☐ No. 6815—Trailer Sprayer
- ☐ No. 7118—Bagging Scale
- ☐ No. 7160—Portable Pump
- ☐ No. 7165—Scale Bulletin
- ☐ No. 7167—Agricultural Films
- ☐ No. 7169—Belt Conveyor
- ☐ No. 7186—"Tare-Out" System
- ☐ No. 7191—Trough-Belt Conveyor
- ☐ No. 7193—Vacuum Barrel Handler

(PLEASE PRINT OR TYPE)

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COMPANY .....

ADDRESS .....

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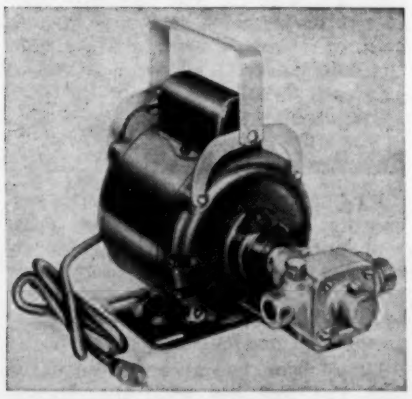
hydraulic, motor-driven vacuum pump which operates in conjunction with the regular hydraulic system of the fork lift truck. Each unit is equipped with a dashboard panel control which allows operators to lift or release up to four barrels collectively, individually or in any combination. Check No. 7193 on coupon and mail to secure more details.

No. 6795—Product News Sheet

"News Briefs on the Creative Use of M & C Process Materials" is a regular publication of Minerals & Chemicals Corporation of America. The publication contains information about the uses of the company's mineral products for varied industrial purposes. Check No. 6795 on the coupon and mail it to Croplife to secure details.

No. 7160—Portable Pump

The Douglas Chemical Co. is merchandising a new portable pump. It is especially designed for the com-



pany's grain fumigants, but can be used for most any pumping job. Ordinary garden hose connections will fit the pump connections. Pump motors come in two sizes—¼ h.p. and ¾ h.p. The motor is a single phase, 60-cycle, 115V, capacitator type electric motor with a 5-ft. cord and safety plug. Motor and pump are sold as a single unit.

No. 7186—"Tare-Out" System

A new automatic "taring-out" system makes it possible to fill a variety of containers with exactly the same amount of material each time, regardless of the weight of each container, it is claimed by officials of the Richardson Scale Co. Centered in a well-mounted panel are the controls for positioning a container on the weigh platform, dialing in the desired weight, taring-out the weight of the container, delivering the material and removing the filled container. Now in operation weighing from 94 to 259-lb. amounts of cement-impregnated wood fiber into steel forms which vary in weight from 300 to 370-lb., this system has a normal speed of two cycles per minute. Weighing smaller quantities, the speed would be considerably increased. Check No. 7186 on the coupon and mail it to secure details.

No. 6806—Weed Killers

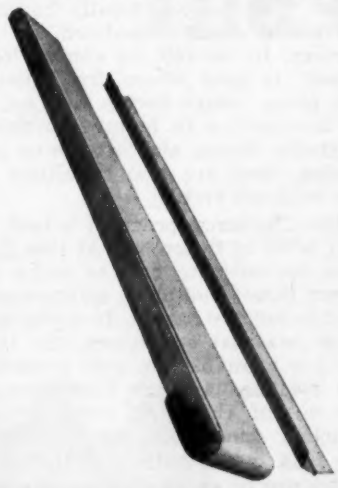
Four garden weed killers have been added to the Du Pont chemical line for next year. Included are Du Pont Chickweed Killer, based on neburon; Du Pont Crabgrass Killer, based on amine methyl arsonates (AMA); "Manzate" maneb fungicide; and Du Pont Combination Garden Spray, containing methoxychlor insecticide and "Parzate" zineb fungicide. All four products are formulated for use in hose sprayers or other common garden sprayers, the company said. For details, check No. 6806 on the coupon and mail to this publication.

No. 6808—Chemical Folder

A four-page folder, containing specifications, descriptions, uses and shipping information about industrial chemicals, has been released by Sohio Chemical Co. The folder highlights the uses of anhydrous ammonia, aqua ammonia, nitric acid, urea and nitrate solutions in the manufacture of a large number of other products. Check No. 6808 on the coupon and mail to this publication for details.

No. 7169—Belt Conveyor

A new conveyor is being marketed under the name of Porta-Veyor by Bunke-Musser, Inc. The drive unit of the equipment is completely enclosed in the conveyor, eliminating chain drives and guards on the outside. It can operate flat on the ground and up to a 30 degree angle. It is being manufactured in a variety of



lengths and belt widths, and has a load capacity of 400 lb. Belt speeds can be adjusted to as low as 15 ft. per minute. Literature and prices are available by checking No. 7169 on the coupon and mailing to Feedstuffs.

No. 6815—Trailer Sprayer

Simplicity, large capacity, low cost and versatility were the features Tryco Manufacturing Co., Inc., says it has tried for in the firm's 1959 line of fertilizer sprayer equipment. The trailer sprayer has a 300 gal. steel tank, 1¼ in. PTO pump system and a 33 ft. stainless steel boom assembly. For more details, check No. 6815 on the coupon and mail to this publication.

No. 7167—Agricultural Films

American Cyanamid Co. has published a booklet listing agricultural films available from its agricultural division. The illustrated booklet gives a brief description of each film, its title and length. For the most part the films deal with livestock production, and are available free for group showings. For further information, check coupon No. 7167 and mail to Croplife.

No. 6807—Research Handbook

After seven years of research, the Nitro-Form Agricultural Chemical Co. has published a handbook containing the results of experiments with Urea-form-based fertilizer. Called "Your 'Blue Chip' Fertilizer Program, Manufacturers' Handbook," the publication is aimed at all phases of the industry including production, research and sales. For more information, check No. 6807 on the coupon and mail.

Idaho Potato Crop Heads for Record

BOISE — Idaho's most widely-known crop — potatoes — appears headed for an all-time record, the U.S. Department of Agriculture reports.

The USDA statistician in charge in Idaho estimates the fall potato crop at 39,770,000 cwt., a boost of 4 million cwt. over last year. The outlook for late summer potatoes also is considerably higher than last year, with the 1958 forecast pegged at 2,266,000 cwt. against 1,849,000 for 1957.

Onions and sugar beets also are joining the parade to higher crop production in Idaho. The onion output is estimated at 836,000 cwt. this season as compared to 589,000 cwt. last year. Onion production, however, still will be far below average.

Sugar beet output for the Gem State is expected to hit 1,785,000 tons, a slight increase over the 1,770,000 tons harvested in 1957. The tonnage is well above average, however.

High acreage and yield were given as the reason for increase in both potatoes and sugar beets, while the onion boost was credited to increased yield.

Potato and onion harvestings are progressing rapidly with sugar beet digging just getting under way. The potato harvest will continue through October, while onion activity will wind up by mid-October.

Brazil City Invites Bids On Fertilizer Plant

WASHINGTON — The director of the Department of Welfare of Recife, Brazil, has invited U.S. bids for industrialization of the city's trash materials. The offer stipulates that the bidder must provide capital investment for the purchase of a factory site and necessary equipment for a fertilizer plant.

The plant is to convert 300 tons of garbage daily into fertilizer, using biological processes, the director said.

The concession is offered for 25 years with an option of renewal for another 25 years.

Market potentialities are said to be "good and expanding" by the director.

Pome Fruit Virus Diseases Subject of West Coast Study

BERKELEY, CAL.—A new study of pome fruit virus diseases is getting under way at the University of California at Riverside.

The cooperative project between the university and the U.S. Department of Agriculture reflects a growing belief that viruses may be causing great damage in West Coast apple and pear orchards.

Plant pathologists Thomas S. Pine, USDA, and Henry Schneider, of the university's citrus experiment station, will seek the causes of "slow decline" and other orchard ailments.

Budding sample tree wood to test plants that reveal the presence of disease, they will use southern California as a large "laboratory" within which material can be moved freely because of the lack of large pear and apple industries.

In northern California, Oregon, and Washington, such experimentation is hampered by the presence of large commercial orchards. Introduction of material for experimental purposes there might result in spread of a disease.

AIRCRAFT CONVENTION

FRESNO, CAL. — The Ninth Annual Convention of the California Agricultural Aircraft Assn., Inc., will be held next Jan. 22-24 at the Senator Hotel in Sacramento, Cal., Wanda Branstetter, executive secretary, announced.

Gloomicides

That clergyman was an expert in human relations who was disturbed during a sermon by some noisy persons. He did not scold or manifest any sign of anger.

"I am always reluctant," he said quietly, "to expose those who misbehave during services, because of an experience I had some years ago. A young man who sat in front of me was laughing and making grimaces. I was annoyed and rebuked him severely. Later I was told that I had made a grave mistake. The man I had reproved was an idiot."

The noise-makers subsided.

★

The young man had decided that Thanksgiving Day would be the most romantic time to propose to his sweetheart. When the stage was properly set, he dropped to one knee before her and said, "Darling, will you sail with me on the sea of holy matrimony?"

"Yes," replied his practical-minded girl friend, "after you've made a large raft of money."

★

A housewife was one of several volunteers for Red Cross service duties. She remarked to the group that she did not know what hours she could work because she had an old dog at home who required a lot of her time.

Next week, at her first aid class, she said something about having tried out her lesson on bandages on her dog.

"Oh, then you really do have a dog!" one of the other women exclaimed. "I've been thinking about that all week—wondering whether you were referring to your husband."

★

"My poor man," said the wealthy dowager to the accordion player in the restaurant, "why do you cry so hard during your playing? Do the songs bring back unhappy memories?"

"It's not the songs," sobbed the musician. "It's just the accordion—it pinches my stomach."

★

Johnny, who had acquired the habit of using profane language quite extensively, was warned by his mother never to say such words again, or she would pack his clothes and turn him out.

Johnny promised his mother that he wouldn't, but it was not very long until she heard him swear. She immediately packed his clothes and put him out of the house.

The boy stood on the steps for approximately an hour, his mother watching him from the window, and finally she opened the door and asked him why he did not leave.

"I was wondering," he replied, "where the —— I would go."

★

Two candidates for mayor in a small town had waged a heated campaign that had taken on a bitter, personal tone. Even after the election, neither man would speak. On the New Year's eve following the election, both men were invited to the same party. Near midnight the host approached the losing candidate. "Sam," he pleaded, "for the sake of peace in our town, will you please make up with Norton? Just go over and wish him a happy New Year."

After an inward struggle, Sam reluctantly went up to the new mayor. "Norton," he said, "I wish you a happy New Year." Then, drawing a deep breath, he added, "But only one."

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Prices paid to farmers advanced 2% in the month ended Sept. 15, USDA announced. This forward move was a surprise to many economists who had not expected to see a favorable rise at this time.

The number of cotton acres fertilized each year is second only to the corn crop, according to a USDA survey. Of 19 million acres of cotton harvested in 1954, year of the survey, 58% had received fertilizer.

SunOlin Chemical Co., a joint subsidiary of Olin Mathieson Chemical Corp. and Sun Oil Co., was formed. The new firm will produce urea. James I. Harper of Sun Oil is president, and S. S. Johnson, Olin Mathieson, vice president.

Hercules Powder Co. announced that its new plant at Hercules, Cal., is producing urea in commercial quantities. The plant has a capacity of 20,000 tons a year.

California Spray-Chemical Corp., Richmond, Cal., announced that it plans to construct a $4,600,000 chemical fertilizer plant at Kennewick, Wash. Completion is scheduled for the end of 1959.

Page Edmunds was appointed assistant general manager of chemicals in the W. R. Grace & Co. Davison chemical division. Mr. Edmunds was also made vice president of Davison Chemical Co., Ltd., Canadian affiliate of the division.

Fertilizer and pesticide sales prospects in cotton-growing areas of the U.S. appear to be brighter for next year since gross income of cotton growers improved this season. Gross income was estimated at $1.95 billion as compared to $1.5 billion last year.

Tobacco acreages of U.S. were reported by USDA as being heavy users of fertilizer materials. A state-by-state survey revealed that practically the entire acreage of tobacco receives large applications of fertilizer.

The New England Fertilizer Conference held at Melvin Village, N.H., attracted more than 100 persons, and was told by one of the speakers that farming efficiency and the introduction of many new materials and devices comprise a greater revolution than was the industrial revolution of the early 1800's.

Justin Potter was named president of Virginia-Carolina Chemical Corp. at a meeting of the board of directors. He succeeds William H. Wilson who resigned.

Edward R. Schumann was named to represent the National Plant Food Institute in the St. Paul District.

Permits to mix and distribute fertilizer-pesticide mixtures were given by the state of Virginia, providing rules of labeling and procedure are strictly observed. Aldrin and Heptachlor were the pesticides mentioned specifically in the announcement by the state's Department of Agriculture.

Sulfur production during July was 359,384 tons of native sulfur and 47,173 tons of recovered, the U.S. Bureau of Mines reported.

J. H. Elliott, Rohm & Haas Co. of Canada, Ltd., was elected president of the Canadian Agricultural Chemicals Assn. at the group's meeting in Winnipeg in September.

A new coding system for improving the nomenclature of nitrogen solutions was suggested by the National Plant Food Institute. Its recommendation was based on the findings of an industry committee which made a study of the situation earlier.

Consolidated Laboratories, a newly-formed division of Schrock Fertilizer Service, Congerville, Ill., was dedicated Sept. 10.

Farm income for the first eight months of the year showed a greatly improved rate, as compared with the first eight months of 1957.

An estimated 31% of approximately 37 million acres of oats harvested during 1954 received fertilizer, according to a report prepared by U.S. Department of Agriculture researchers.

A half-million dollar expansion of its Garfield, Utah, plant is being planned by Western Phosphates, Inc. The expansion would boost total volume of phosphate rock by about 10%.

A special working group representing industry and government is studying the needs of a comprehensive research program to find better means of controlling the boll weevil, most costly insect pest of the nation's cotton crop.

The recent grasshopper control program on ten Western States covered some five million acres, the U.S. Department of Agriculture reported. The effort was reported to have saved many thousands of acres of wheat and other small grain crops from insect damage.

Despite lower price supports for corn and cotton projected for 1959, the fertilizer industry expressed confidence that more acres of these crops will be planted next season.

Anhydrous ammonia sales increased 14% during the first seven months of 1958, the Agricultural Ammonia Institute reported.

Fertilization of wheat lands showed continual increase in past years, the USDA reported in the fifth of its series of articles on fertilizer use by crops and regions of the U.S. A continuing potential for sales was seen.

The American Chemical Society held its 134th meeting in Chicago with the presentation of numerous technical papers on fertilizer production.

Production of superphosphate in the U.S. for the period of July, 1957 to June, 1958, was 5% greater than that of the previous fiscal year, according to figures released by the U.S. Department of Commerce. The greatest gains were recorded in concentrated superphosphate.

MOVE

(Continued from page 9)

concrete display area highlight the patio located in back of the store. Water lilies in the pool are available for sale, and flowers within the circular area are rotated often. Primary function of the patio is to show color to the customers through the use of an alcove at the back where seasonal flower arrangements are set up.

The nursery itself specializes in convenience for the shopper. Aisles are wide and paved, and carts much like those used in supermarkets are available at the entrance to the nursery. All of the beds are marked as to type of plant or flower, and each item is individually priced. Several beds are raised about 18 in. off the ground for more easy selection by the customer. Many plants and flowers are shown on tables and benches located in a sheltered area near the store building.

The primary advertising technique of the nursery is direct mail. About 20,000 pieces of direct mail are used during the spring, summer, fall and Christmas promotion periods. Some newspaper ads are also run at these times. The mailers usually herald a particular event scheduled at the nursery. In the fall, an annual "open house" is held where free samples are given away—booths are set up by distributors to feature particular products. Movies and lectures on gardening ideas are also scheduled for the weekend event.

The Christmas program is held the first week in December. At this time, girls demonstrate how to make different flower and plant arrangements for the holiday season. In addition to these seasonal campaigns, the store itself is available the year around in the evenings and on Thursdays for the use of charitable organizations. Dinners, dances and fashion shows are held in the patio and the store, which can be emptied of merchandise and counters in 10 minutes. These events help to get people acquainted with the nursery.

This summer, Orchard Nursery entered the Ortho contest to promote Chlordane with the theme, "There's a modern way to control insects." The displays set up in the nursery using this theme included an old washing machine compared to a new model, a vintage automobile contrasted to a new convertible and mannequins dressed in old and new style bathing suits.

New Mexico Appoints College Soils Specialist

STATE COLLEGE, N.M. — Vernal H. Gledhill has been appointed soil specialist at New Mexico A&M College and will be in charge of the new soil and water testing service being initiated by the college's experiment station and extension service.

"The new laboratory is expected to provide soil and water testing service needed by farmers and home gardeners of New Mexico," according to Dr. Robert H. Black, dean and director of agriculture at New Mexico A&M.

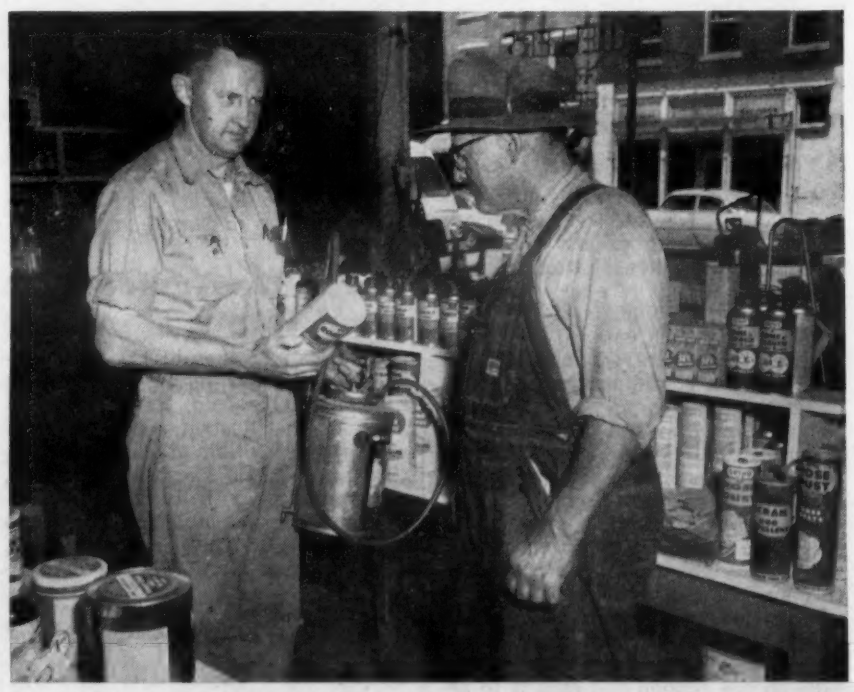
County extension agents will assist farmers and gardeners in examining analysis data. The county agents are being provided with procedures for handling soil and water samples and obtaining analyses.

The new soil specialist received his B.S. degree in agronomy from Brigham Young University in Provo, Utah, and his master's degree in soils from North Carolina State College at Raleigh. He recently completed work for his doctorate in soils, also at North Carolina State. Mr. Gledhill was soil research assistant at North Carolina State in 1954-55.

Entomologist Resigns

STATE COLLEGE, N.M.—The resignation of Dr. R. C. Dobson, assistant entomologist with the department of botany and entomology, New Mexico A&M College, was announced by Dr. Robert H. Black, dean and director of agriculture.

Dr. Dobson has accepted an assistant professorship with the department of entomology at Purdue University, Lafayette, Ind. He reports for his new position about the middle of October.



SHOW THEM SPRAYERS, TOO!—When a customer comes into a store and buys spray material, he may also need a new sprayer. However, this sprayer sale may not be made unless the alert clerk asks the customer what condition his old sprayer is in. The clerk may also suggest features of a new sprayer. At the F. Mueller & Sons farm store, Maquoketa, Iowa, one of a string of seven stores owned by the company, clerks always suggest new sprayers when selling spray materials. And it results in the sale of additional sprayers. Clerks say that many customers try to get along with old, ineffective sprayers year after year and do not buy new ones, until they are suggested and shown.

FARM SERVICE DATA

Extension Station Reports

"Two limiting factors in the $4 million field grown rose bush crop of southern California are root lesion and hairy root diseases," stated two University of California scientists.

Losses from these diseases in 1953 and 1954 prompted a preliminary survey in 1954 that revealed numerous nematodes in the soil around stunted chlorotic rose plants. Plant roots also contained root lesion nematode in all stages and in large numbers.

S. A. Sher, assistant nematologist at the University of California, Riverside, and D. E. Munnecke, assistant plant pathologist at the university, supervised testing designed to determine the role of nematodes in the growing of rose bushes. They found that rose plants showed disease symptoms in all replications in which root-lesion nematode was introduced. No disease symptoms were recorded in the stubby-root nematode or in the uninfested series.

Mr. Sher stated that "only root lesion nematode was recovered at the termination of the test at the end of the year in all the root lesion nematode infested soils. Leaf analysis showed root lesion nematode infested plants lower in iron, copper and potassium than control plant leaves."

The two diseases, root lesion nematode and hairy root bacterium are often seen together in the field, according to Mr. Sher, but what effect the root lesion nematode has on hairy root bacterium, a wound parasite, is unknown. Root lesion nematode alone can cause a disease capable of almost complete destruction of a rose crop. "Soil fumigation effectively controls the disease," said Mr. Sher.

Hairy root bacterium, although not as destructive on a two year rose crop, can produce symptoms on as many as 20% of the rose crop, according to the findings of the two men. They concluded that plants with hairy root do not make good rose bushes when planted but the disease can be controlled by fumigation of soil and dipping of cuttings to be planted.

★

Adequate fertilization now on winter range will pay big dividends in the coming season reports the California Fertilizer Assn.

Another example of range fertilization benefits comes to light through Monte Bell, Glenn County farm advisor, who states that some 1,500 acres of Glenn County range land were fertilized last year with significant results.

Interest in range fertilization was boosted by the results of a 4-year large-scale range fertilization trial conducted by the Agricultural Extension Service in cooperation with J. W. Sevier, Willows rancher. The summary of the every-other-year application of 50-70 lb. nitrogen and 20-25 lb. P_2O_5 per acre showed the following:

	Control	Carry-over	Fertilized
Average lb. beef/acre/season	26.9	46.9	93.9
Average over control ...		174%	351%

Each pound of actual fertilizer produced 1.14 lb. of beef.

"It's getting late," Mr. Bell reminds, "to plan your range fertilizer program for the coming season. One of the most important advantages of fertilizing ranges is to produce early feed. Naturally this can be done only if the fertilizer has been applied early. The only loss you would expect by applying fertilizer early is the possibility of high wind blowing the fertilizer off the ridges. In most cases, however, where there is any residual grass growth, there will be no loss of fertilizer nutrients by weathering. Fertilizing early catches the first rains and doesn't interfere with sowing barley or other fall-planted crops."

"The only way to get maximum returns from fertilized range is to utilize it fully and fertilize for a definite purpose," said Mr. Bell. "It is better to fertilize a small area with fairly heavy amounts than to spread it too thin over a large area. The fertilized portion of a field will act as a fence and livestock will concentrate their grazing in the fertilized area. While the stock is grazing on this more palatable, more nutritious early feed, the unfertilized portion of the field has a chance to get a good start."

★

Tests with range fertilization on the Hearst Ranch at San Simeon, Cal., have tripled the animal carrying capacity and increased net profits by $25.88 per acre over fertilization costs, reports Randolph W. Apperson, manager of the Hearst Ranch.

Mr. Apperson reports that the results of experimentation with test plots have demonstrated that animals showed a strong preference for the fertilized grass over the unfertilized. The over-all results, he says, of the tests have been "so remarkable they appear unbelievable —but remain true facts."

In a test at the ranch, supervised by the Agricultural Extension Service of the University of California and by county farm advisor Russell Helphenstine, there were 106 lb. urea and 106 lb. di-ammonium phosphate applied to each acre of a 68-acre test plot. Another 153 acres went unfertilized as a control plot.

★

Deciduous oak trees on California rangeland may cut the land's forage growing potential as much as 80%. Grass that can be added to the range by getting rid of oaks may easily cover the cost of tree-killing chemicals, says A. H. Murphy, superintendent of the University of California's Hopland Field Station.

For the past few years the competition of oaks with range grasses

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NEW YORK, N.Y.—*80 Broadway*
OMAHA, NEB.—*3212 Dodge St.*
PASADENA, CALIF.—*317 North Lake Ave.*
RALEIGH, N. C.—*401 Oberlin Road*
SALT LAKE CITY, UTAH—*68 South Main*
SPOKANE, WASH.—*521 East Sprague*
ST. LOUIS, MO.—*4251 Lindell Blvd.*
TAMPA, FLA.—*3737 Neptune St.*
TULSA, OKLA.—*1708 Utica Square*
WICHITA, KAN.—*501 KFH Building*

has been studied on the 4,700-acre station, which has many acres of blue oaks. In one Hopland area studied, Mr. Murphy said, forage growing under blue oaks was a fifth that of surrounding open range.

"Almost no forage grows in the shade areas of either evergreen live oaks or deciduous black oaks," he observed. "Thus the forage increase under these trees when they are killed can be tremendous.

"With the deciduous blue oaks the response may not be as great, as some grass is usually found under these trees. But blue oaks usually occupy more land, so that total increased grass yield after chemical treatment of these trees is often greater.

"With the acreage value of range land increasing continually, the wisdom of getting more yield from each acre is sound."

Botanist Oliver A. Leonard of the university staff at Davis has demonstrated a successful method of killing oaks by chemical treatment with herbicides, said Mr. Murphy. Mr. Leonard finds an economical method is frilling, or surface cutting, of the oak trunk and inserting the chemical. Treatment can usually be done in the winter and spring months.

Mr. Leonard uses an oil can full of herbicide and a hatchet to cut the bark. If the chemical is properly applied, the tree will show gradual signs of dying during the growing season following treatment.

As the oak canopy thins out, the grass response is rapid, said Mr. Murphy. Often in areas under trees where much soil is visible before treatment, the grass will soon thicken to the point where no soil can be seen, he said.

"Response of forage to tree removal will be closely tied to productivity of the soil," Mr. Murphy added. "Treat the better soil locations first and then progress toward the poorer soil sites.

"If each acre of rangeland is to pay its own way in productivity, then reducing thick stands of oak trees is an essential range practice in California's foothill grazing areas."

★

At open house at the University of Massachusetts' Waltham Field Station, chemical mixtures to lick pests were shown to visitors. Demonstrations featured effectiveness of general purpose pesticide mixtures in plots divided into three areas, dusted, sprayed and untreated. The untreated area was left intact so visitors could see what damage is done when all important control measures are left out of crops.

In the untreated section, Mexican bean beetles and corn borers had appeared. Under the direction of W. D. Whitcomb and W. J. Garland, entomologists, the experimental vegetable plot was made of eight varieties of common vegetables including peppers, beans, potatoes, cucumbers, sweet corn, tomatoes and beets.

Aim of the demonstration was to devise a combination of chemicals that controls insects and diseases and does not affect yield or quality in the vegetables. On trial are three general purpose mixtures, sevin, maneb and aramite and a third plot with methoxychlor, malathion and captan. Two of the three mixtures were applied both as sprays and dusts.

It was pointed out that these special ingredients can destroy insect pests when used separately. The experiment trial is to help determine whether or not the chemicals are as effective when they are applied in combination.

So far, Prof. Whitcomb said, both the dust and spray mixtures have damaged the string beans. While they think the miticide aramite is the cause, a later planting with applications of chemicals less aramite will be made to cross check this belief.

A study on the effect of modern pesticides on taste and quality of melons and squash is also underway at Waltham Field Station. Black plyethylene mulch also is being tested for effectiveness in hastening the maturity of melons. The contrast between mulched and zineb, a second section road is the untreated plot, a plot treated with malathion. Unmulched plots will be very apparent, Prof. Whitcomb said.

Apple trees are being used for studies in the control of insects and disease by spraying. Various chemicals, the best time of application and the number of applications are being carefully studied to help bring better fruit. E. F. Guba, field station staff member, is in charge of the disease part of apple pest control.

★

Several hundred guests at the annual field day of the Connecticut Agricultural Experiment Station heard plant scientists tell their story of research. The field day, held at the station's 61-acre outdoor laboratory at the Lockwood experimental farm in Mt. Carmel, gave visitors an opportunity to see how the researchers use their facilities, an official said.

Richard Bradfield of Cornell University, soil scientist, was the principal speaker. He was introduced by James G. Horsfall, station director. Guests were welcomed by J. Peter Johnson, general chairman of the event.

Dr. Bradfield made the assertion that this country cannot afford a moratorium on basic research. Such research, he pointed out, cannot be "turned on and off" to meet immediate demands. As an example of the value of basic research he reviewed the far-reaching effects now shown in the poultry industry by application of basic research in proteins and amino acids conducted decades ago by Dr. Thomas B. Osborne of the Connecticut station. Freely available because of timely publication, the work of Dr. Osborne has been enlarged upon and put to use by those who could use it, Dr. Bradfield said.

He viewed the station's basic research in the microclimate of plants, and their immediate environment, as of comparable value in years to come.

"With fewer and fewer people needed to produce food and fiber for the U.S., as research and development lengthen and strengthen the hand of the producer, a new need arises," Dr. Bradfield said. "That need is for more and more highly trained people to man the factories and the research facilities to back up the commercial producers of farm products. This support is a must because of the steadily increasing amount of capital investment represented by a modern farm and its equipment, and the greater disaster therefore incident to crop failure from any cause."

Exhibits arranged by staff members under the general direction of W. Theodore Brigham covered the following fields: fertilizer analysis, nematode injury to plants, chemical curing of tobacco, investigation of plant sugars, soil analysis, population control in house flies as affected by insecticides, root penetration, forest ecology, and types of fungicidal action.

Tours to research plots were arranged by committees responsible to Saul Rich, plant pathologist. They included typical examples of investigations underway by entomologists, plant pathologists, foresters, geneticists, and soil scientists.

Books on Fertilizers And Their Use

FOREST FERTILIZATION
Donald P. White and Albert L. Leaf

A bibliography, with abstracts, on the use of fertilizers and soil amendments in forestry. Useful to those interested in prospects of a plant food market in forest areas, the book resulted from a special two-year study at the college of forestry, Syracuse University, Syracuse, N.Y., under sponsorship of the Nitrogen Division of Allied Chemical & Dye Corp. The book contains 300 pages, 700 references, with abstracts, and covers the period from 1865 through 1956. Includes the use of fertilizers in forest management **$3.00**

SOIL FERTILITY AND FERTILIZERS (1956)
Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following backgrounding course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management program. 430 pages, cloth bound **$7.75**

PLANT REGULATORS IN AGRICULTURE
Dr. Harold B. Tukey

Published September, 1954. A text book giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarpy, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages **$6.50**

THE CARE AND FEEDING OF GARDEN PLANTS
Published jointly by the American Society for Horticultural Science and the National Plant Food Institute.

An entirely new, one-of-a-kind book, it is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color **$3.00**

AUXINS AND PLANT GROWTH
A. Carl Leopold

A 366-page book, complete with bibliography, appendix, and index, discusses the fundamental and applied aspects of growth hormone and synthetic auxin action in plants. These are of interest to all workers in agricultural chemicals—for weed control, flowering control, fruit set, flower or fruit drop and plant propagation. The text is divided into two sections, (1) fundamentals of auxin action, and (2) auxins in agriculture. These cover developmental effects of auxins, the physiological and anatomical effects of their application, the chemical nature of growth regulators, and methods of applying auxins and their persistence in plants and soils. Other subjects covered: rooting, parthenocarpy, flower and fruit thinning, control of pre-harvest fruit drop, flowering, dormancy and storage, herbicides, miscellaneous uses of auxins, and potentials of auxins and auxin research. Published by University of California Press..... **$5.00**

ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE
By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Solubility in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III— Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful answers to problems of practical application **$4.50**

HUNGER SIGNS IN CROPS—Second Edition
A symposium—published jointly by the American Society of Agronomy and the National Plant Food Institute.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color **$4.50**

USING COMMERCIAL FERTILIZER (1952)
Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods. 208 pages, 106 illustrations, cloth bound..... **$3.50**

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)
Gilbeart H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages **$8.50**

APPROVED PRACTICES IN PASTURE MANAGEMENT (1956)
M. H. McVickar, Ph.D.

Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U.S. pasture areas. Twenty chapters, 256 pages, illustrated **$3.00**

MANURES AND FERTILIZERS

A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data **$2.50**

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Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

When Oscar came back to the office after lunch at home, Pat was already gone, and plump, ulcerish Tillie Mason was just finishing her dessert—a big red apple.

"Ach, that Pat, he can't even wait till I get back before he goes to lunch," Oscar snapped. "He doesn't get here until 10 every day, and he takes two hours for lunch. He works about 20 hours a week, and, ach, the rest of us work 48. We shouldt only pay him for 20 hours a week. Then he wouldt get to work on time like I do."

"But he works nights sometimes," Tillie defended. "That gives him more hours per week."

"That don't count. He shouldt work days when the store is open, like we do."

"Well," said Tillie, "he's working now, even at lunch. He said he was taking Eddie Tillson, the banker, to lunch."

Oscar's eyes popped open. "Ach, he ISS taking the banker to lunch?"

"That's what Pat said."

"Himmel, what now?" Oscar growled. "Once yet he shouldt pay for a banker's lunch. I own some stock in the bank. Now I haf to pay for Pat's time, and then Pat keeps the banker oudt two hours and the bank suffers. I get double losses. Ach, what a business!"

"Oh, I'm sure it isn't as bad as that," Tillie said soothingly. "Pat was pretty happy before he went to lunch. He said he had a wonderful idea to try to sell to the banker."

"Sell!" almost shrieked Oscar. "It's a disease! Always he wants to sell something. I wish he wouldt get the collection disease. That we couldt stand for awhile."

"Well," said Tillie philosophically, "it pays to have the banker on your side. One never knows—"

"Ach, those bankers are foolish, too, lots of times," Oscar snapped. "I don't trust them. Minnie and I haf lots of money in savings in the bank. I got some stock, too. When I deposit money believe me, I tell that Tillson and others in the office about the foolish loans I hear they are making. I tell them to watch our money more careful."

Tillie could just imagine Oscar talking to the bankers, too. He would pull no punches. He would be thinking of only one thing—the safety of his money and the foolishness of lending money to people who knew only how to "spendt" and not to "safe."

Oscar had to wait quite a while before Pat came back to the office, and he almost ran out of discount work, despite his anger at his partner. But Pat brought sturdy, rosy faced Eddie Tillson back with him, and both men were in a jovial mood.

"Well, Oscar, how are you?" asked Tillson, stretching forth his hand. "Pat, here's one of the best depositors we have at the bank, Oscar and his wife."

Oscar extended a limp hand and did not respond to the handshake. "Well, see that you take goot care of our money," he said. "There's too much spending today."

Pat laughed. "Oscar's a good watchdog."

Tillson smiled. He knew Oscar, too. "Oscar, the bank really fell for this ad idea of Pat's. I think the farmers will like it, because of its news character. And your farm business, and the business of all men who sell to farmers will benefit, too, even though we don't mention company names—except our own, as sponsor, of course."

"We're advertising too much now," Oscar said. "We are advertising—crazy. Ach, and we are weak on collections."

"You fellows are not starving, I guess," said the banker. "And WE, not YOU are paying for this advertising, so you don't have to worry."

"I AM paying," Oscar said. "I own stock in your bank, and I have money on deposit. I don't get such big dividends if you fellows spendt too much. And if Pat spendts too much, I lose, too. Huh?"

Eddie Tillson smiled. "You talk just like my board of directors sometimes. I still think Pat's idea is good—that the bank advertise in a one-column 12 inch ad once a week giving latest farm news to farmers. The copy will be short paragraphs about fertilizers, feed, crops, farm machinery uses, raising hogs, cattle, pigs, etc. Capsules of information the farmer can read quickly."

"And we along with other farm dealers will supply the bank with usable material for the column," Pat offered.

"The farmer gets too much free now," Oscar grunted. "He thinks sometimes he doesn't haf to pay for anything. I know. I haf to talk my headt off to collect sometimes."

Eddie Tillson sighed. "Well, Oscar, I wish I could see it your way, but I can't. Sorry. Well, I'll have to be getting back to the bank. So long, Oscar."

Pat walked outdoors with Eddie Tillson to his car. Oscar looked after them. "Ach, if that banker schticks aroundt Pat too much, he'll be a big spendter, too, and the bank is going to be in trouble. Advertise farm facts to the farmer! Ach, he can't readt everything he gets now."

He stroked his chin. "Ach," he said as if to himself, "Maybe I better schtart looking for another bank. I must talk it over with Minnie tonight."

Publish Crop Data

BERKELEY, CAL.—Two new publications directed to crop growers have been released by the University of California.

The titles are: "A Technical Study of Insects and Related Pests Attacking Walnuts," by A. E. Michelbacher and J. C. Ortega, as Bulletin No. 764; and "California Fruit Statistics and Related Data" by S. W. Shear and R. E. Blair, as Bulletin No. 763.

They are available for distribution from Agricultural Publications, 22 Giannini Hall, on the Berkeley campus.

FARM INCOME UP

FRANKFORT, KY.—Realized net income per farm in the state rose from $1,435 to $1,733 during a seven year period from 1950 to 1957, reported the Kentucky Department of Economic Development. The increase represented a gain of 20.8% compared with a national decline of 4.4%.

Books on Pesticides

WEEDS—Second Edition (1955)
W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with reference to chemical methods of recent discovery $10.00

CHEMICAL BUSINESS HANDBOOK
Dr. John H. Perry

1,300 double column pages, the equivalent of several average books; 700 illustrations, by 124 contributors. Market research data section is 280 pages, business mathematics 200 pages, financial and accounting 142 pages, research and development 150 pages, sales and advertising 92 pages, twenty sections in all. The book deals with chemical management problems and is useful to technical men, engineers and executives, in the chemical and allied fields. Dr. Perry is editor of the Chemical Engineers Handbook, a companion publication $17.00

INSECT PESTS OF FARM, GARDEN and ORCHARD Fifth Edition (1956)
Leonard M. Peairs and Ralph H. Davidson

A standard text for 44 years. Includes insects affecting grasses, grains, cotton, legumes, vegetables, flowers, fruits, stored products, household goods and domestic animals. Contains a new chapter on insecticide formulations, spray mixtures, application equipment, etc. Material on forty new pest species added, including drastic changes in the illustration. 661 pages $8.50

DDT and NEWER PERSISTENT INSECTICIDES
T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatability of DDT with other insecticides, fungicides and additions are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations $8.50

APPLIED ENTOMOLOGY—Fifth Edition
H. T. Fernald and Harold H. Shepard

This text since 1921 has had an outstanding record of usefulness. The Fifth Edition preserves the general organization and coverage, with changes to improve the presentation and to incorporate new knowledge. Contains chapters on anatomy, physiology and development. The economic importance and control of insects are discussed in a general way with much attention to insecticides. The classification of insects is emphasized, with examples drawn from species conspicuous for being very harmful or decidedly beneficial. Specific control measure included for injurious forms. Last chapter considers other pest animals closely related to insects. 388 pages $7.00

DISEASES OF FIELD CROPS—Second Edition (1956)
James G. Dickson, Professor Plant Pathology, University of Wisconsin

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Dr. E. R. de Ong

The information is grouped according to field of application rather than to chemical composition or nomenclature. Chapters on insecticide label, seed disinfectants, herbicides, forest insects and diseases, livestock insects, and the pests found in household and industry. Fumigation of warehouses, residual sprays and preservatives for fruits, vegetables and wood products are covered. An up-to-date guide on pest control with the needs of operators, agricultural and structural specialists carefully considered. Shippers and warehouse personnel will find the book useful..... $10.00

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BUG OF THE WEEK

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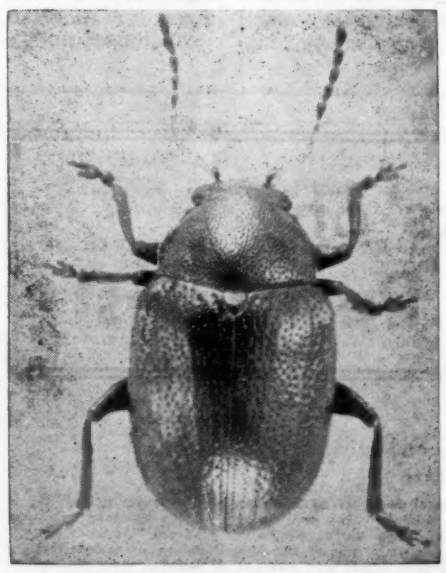
Rose Leaf Beetle



How to Identify

The rose leaf beetle is a small, oval-shaped metallic-green beetle, about ⅛ in. long. They are most numerous in suburban gardens near uncultivated fields. They usually appear late in May or early in June.

Habits of Rose Leaf Beetle

Actually, little is known about this insect, but it is believed that the larvae live in the soil and feed on the roots of various plants beneath the surface. The beetle's scientific name is Nodonota puncticollis (Say).

Damage Done by Insect

In addition to feeding on roots in the larval stage, the rose leaf beetle, as an adult, feeds on a number of flowers in addition to roses. It attacks iris and peonies and also on the tender shoots, flowers and foliage of crops such as blackberries, raspberries, strawberries, clover, peaches, pears and plums. Frequently the beetles swarm over flowers and in a very short time riddle them with shot-like holes, thus retarding growth of the plants and making them unfit either for marketing or for esthetic enjoyment.

Control of Beetle

According to literature on the subject, no satisfactory control for the rose leaf beetle is known. The difficulty lies in actually reaching the bugs with the dust or spray. Many of the pests are working within the buds or flowers and ordinary means of application of insecticide frequently fail to contact the culprits. Some of the literature advises jarring the bugs into a pail of water covered with a film of oil, or by picking the beetle-infested flowers and dropping them into the container. Early morning or at dusk is described as being the best times for such operations.

Illustration of rose leaf beetle furnished Croplife through courtesy of U.S. Department of Agriculture, Washington, D.C.

New Time-Saving Techniques Being Found For Measurement of Pesticide Residues

MENLO PARK, CAL. — Stanford University as well as the University of California is currently conducting research studies on residues of pesticides and insecticides on food products.

In addition to a series of taste testing observations being conducted on the Riverside campus of the University of California, the Stanford Research Institute, Menlo Park, is using a different method to analyze pesticide with gas chromatography.

New time saving techniques are being developed here for determining the amount of pesticides remaining on leafy, green vegetables when they are harvested. After some further refinement, now in progress at the Research Institute, the procedures will require less than two hours, a much shorter period than that usually needed for conventional analytical methods of general use, the SRI reports.

Chemical residues that form on the plants usually decrease in quantity as time passes, the researchers say. However, such residues must be small enough at shipment time to prevent harm to consumers.

With present analytical methods, the SRI reports, it is almost impossible to determine the amount of residue unless the pesticide used is known. In addition, new types of crop protecting chemicals are put into use every year. Under the conventional approach, this requires more and more separate analytical procedures.

A more systematic approach, according to the SRI, to the whole problem of analyzing pesticide residues is becoming increasingly necessary. To this end, a method of employing gas chromatography is being developed at the Institute. It consists of a single and rapid analytical procedure for identifying and measuring the residues.

Gas chromatography is a procedure for separating complex mixtures by passing the material through a heated separation column. This column is a tube packed with a material that allows each chemical to pass through at a characteristic rate of speed. An inert gas such as helium or nitrogen flowing through the tube is used as a "carrier."

In pesticide analysis, the SRI explains, the pesticide is extracted from a vegetable sample. The resulting extract is fed into the separation column of the gas chromatography apparatus. The time of entry is then recorded.

Each type of pesticide chemical requires a different period to volatilize and pass through the packing in the column. In this manner, separation of the pesticides is achieved, reports the researchers.

Identification of the pesticide residues present in the mixture is obtained by recording the time at which each chemical leaves the column. Characteristic behavior patterns have been established for various pesticides. The concentration of the residue is determined by measuring the amount of pesticide leaving the tube.

Effective separation of lindane, aldrin, dieldrin and DDT has been achieved, the Institute reports. To obtain the sensitivity necessary for measuring extremely small residues, new methods are being devised for spotting concentrations as low as one part per million. Combined with the gas chromatography, the improved technique offers great promise for the identification and measurement of unknown residues, the researchers say.

This new application of gas chromatography has been developed under the direction of Dr. D. M. Coulson, manager of analytical chemical research. The work is being carried on at SRI under a financial grant from the John A. Hartford Foundation of New York.

WACA MEETING

(Continued from page 1)

residues affecting the taste, even if not toxic, of canned foods, the canner must insist that the grower adhere closely to governmental regulations and follow label instructions, Mr. Lamb said. New pesticides must be continually developed, and the responsibility for this testing rests with the chemical industry, he said.

What gibberellins are doing to agriculture was demonstrated graphically with slides shown by Dr. J. M. Merritt, manager of plant chemicals, Merck & Co., Rahway, N.J.

The new plant pep material stimulates growth but not flowering, shows no evidence of toxicity and eliminates all residues within 24 hours, research shows. Tests are underway to increase fruit set, improve taste, color and juice quality, Dr. Merritt said.

Speaking on microbial control of insects, Dr. Irvin M. Hall, assistant insect pathologist at the University of California's Citrus Experiment Station, Riverside, said that the potentialities of this method of control "should not be underestimated" but nonetheless are "no panacea."

"The field is in its infancy," he said, and offers great promise for holding an important place in insect control.

Discussing agriculture generally, Dr. George R. Ferguson, president of Geigy Chemical Corp., New York, said that despite a continuing decline in farm population, the "economic forces in agriculture are dominant in business." Farmers purchase 16.4 billion dollars in manufactured products, and chemicals will increase in importance as individual farms increase in size, he said.

W. C. Jacobsen, director of the California State Department of Agriculture, told the chemical producers that the functions of a regulatory agency are largely to combat the spread of insects. The California agency maintains quarantine stations to prevent movement of diseased produce, conducts insect eradication programs, sets minimum standards for crops, provides agricultural statistics and prepares marketing orders and marketing news. California grows some 260 different items within its boundaries, far more than any other state, Mr. Jacobsen said.

Among the handicaps of the industry, according to Melvin Goldberg of the Pesticide Advisory Service, New York, are the haphazard methods of distribution, price wars and "lack of aggressive sales control activity."

Mr. Goldberg was unable to attend the convention in person, and his paper was read by Ivor R. Burden, president of the association. The farmer is a businessman, Mr. Goldberg said, who is interested in producing quality materials; "we have not educated him as to what we are trying to sell nor how our products can be best used. We have generally failed in our public relations."

Mr. Burden, executive vice president of United Heckathorn, Richmond, Cal., was reelected to his second term as president of the association. Jack White, White Chemical Co., Phoenix, was elected vice president replacing Tom Castle, A. L. Castle, Inc., and C. O. Barnard was reelected secretary-treasurer.

New directors to serve two year terms include Frank B. Stewart, Miller Products Corp., Portland, Ore.; Howard J. Grady, Calspray, Richmond; W. E. Ball, Stauffer Chemical Co., San Francisco; Dr. G. L. MacLeod, Sunland Industries, Inc., Fresno, Cal.; George Poppick, Coastal Chemical Co., Oxnard, Cal.; Floyd A. Johnson, General Chemical Division, Los Angeles, and G. H. Weldon, Veliscol Chemical Corp., Berkeley, who was reelected. Ben Hamilton, Sutter Farm Chemicals Co., Yuba City, Cal., was low gross scorer in the annual golf tournament.

Mid-South Cotton Crop Looks Good

MEMPHIS — Cotton pickers, both human and mechanical, are moving into fields of the Mid-South as farmers are taking advantage of cool, dry weather to harvest their crops.

In Arkansas, Mississippi, Missouri and Tennessee pickers are gathering what agricultural officials say is a good crop. With two weeks of cool and dry weather and with the application of defoliants by many growers, the cotton crop has been brought to an abundant harvest. Cotton in most of the Mid-South is clean and will bring a higher price than some of the earlier harvested crop.

Extension officials in the Mid-South are optimistic over the upward trend in the quality of cotton, but the farmers have been worried in some areas because there were not enough cotton pickers. In many counties in west Tennessee and southeast Missouri the cotton was ready for picking, but there were only a few pickers.

Other crops in the Mid-South are being harvested in good order. The corn crop is exceptionally good, with per acre yields in Mississippi generally at an all time high.

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Pesticide Problems--Past, Present, Future

Insecticide Label Requirements More Complete, Exacting Than Those for Many Patent Medicines

By J. H. LILLY*
Head, Department of Entomology and Plant Pathology
University of Massachusetts

A story is that two mosquitoes flew over carrying a Great Dane between them. As they passed by, the one holding the head said to her partner: "Let's get moving before one of those big guys comes along and takes him away from us!"

A closer look would have shown that the situation was not as bad as it appeared to be, because the Great Dane was only a puppy. This little yarn is just a little more exaggerated than some of the ideas certain sincere and intelligent people have regarding the current use of chemicals for the control of the many kinds of pests that molest or destroy crops, trees, livestock, wildlife and man himself.

A full consideration of all the facets of the pesticide problem would fill several books and embrace the knowledge of a whole corps of experts. Obviously, in the short time at my disposal, I can only touch on a few of the high points, and perhaps help set the stage for some serious study and consideration in the future. If this objective is attained I shall indeed be more than satisfied.

Now that I have told you what I hope to do, let me state some of the things I will not do. First, I will not question the sincerity or integrity of anyone in this room. Your very presence here is ample proof of your sincerity and desire to obtain reliable information. Second, I am not here to defend the necessity of using pesticide chemicals. The need for pest control is, I think, too obvious to require a defense from anyone. Third, I shall not for one moment approve or excuse the careless or indiscriminate use of any pesticide chemical by anyone.

The term "pesticide" or "pesticide chemical" is a broad one that needs some explanation. It includes insecticides to control pest insects, fungicides to control fungus diseases of plants and animals, herbicides for weed control, rodenticides to control destructive rodents and several other kinds of chemicals. Our discussion here centers around insecticides, but this does not imply that all of the others are completely safe and without ill effects, especially when improperly used. Also we shall devote most of our attention to the large and very important group of chlorinated hydrocarbon insecticides to which DDT belongs. Again this does not imply that all other insecticides are completely safe. In fact some of the others are much more hazardous to handle and apply, and others are equally long-lasting in their effects.

Insecticides of one kind or another have been in general use for about 80 years. However, until the introduction of DDT in the 1940's, there was little controversy about using any of them. In fact the general public was eager for more and better materials and formulations to keep flies out of its kitchens, caterpillars off its crops and forests, "bugs" out of its rugs, mosquitoes out of its back yards and worms out of its apples.

Only recently has the use of insecticides become the focal point of extreme sentiments pro and con. A few people now view insecticides as "spoilers of nature and a menace to mankind." An equally small group looks upon insecticides and other pesticides as tolls for the complete control and even the eradication of all sorts of pests. The vast majority hold views somewhere between these two extremes, and I hereby cast my ballot with this majority. Most of the extremists (I have close personal friends on both sides) are guided by half-truths, misinformation and invalid assumptions. Unfortunately, some of the misinformation and half-truths are widely publicized, even by intelligent and well-intentioned people.

The basis of the problem lies in the tremendous advances that have followed the introduction of DDT about 15 years ago. Strangely enough, DDT was widely publicized as a true blessing to mankind, and a relatively safe material, for the first 10 years we had it available.

And today, in spite of all the criticism directed at it, DDT is the primary tool in the hands of the International Cooperation Administration which is now in the midst of a 5-year program to eradicate malaria from the face of the earth.

If this fantastic goal is realized, as many competent authorities now expect it to be, it certainly will rank among the major accomplishments in the whole history of medicine and public health. Incidentally, U.S. chemical companies are expected to produce one hundred million pounds of insecticides for this program in 1958.

We hear a lot these days about how well Free World scientists are keeping up with their counterparts in Russia. I recently read a statement by a Russian entomologist that the use of insecticides in Russia has increased over seven-fold during the last 17 years. I for one am pleased to have the word of a U.S. authority that our production of insecticides has also increased approximately seven times during the same period. However, we may still be losing this race to the Russians because a much higher proportion of our output is being exported, largely for mosquito and locust control. I should state in passing that Russian regulations on pesticide residues in milk and other food products are quite similar to ours.

Scientists the world around are studying insecticides and their uses. Insect control is only one of the aspects under critical investigation by entomologists, toxicologists, fish and wildlife specialists, veterinarians and medical men. These people work for state and federal governments, chemical companies and various other public and private organizations. The results are widely scattered and often difficult to properly evaluate and interpret. One must always be on guard against drawing conclusions from results quoted out of context or incompletely. For example: Massive over-doses of an insecticide fed to a laboratory animal always give a misleading impression of what trace amounts of the same chemical may do to the same species in nature, unless the difference in dosages is stressed.

The insecticides we are discussing are particularly toxic to insects. When used as recommended they are also directed at the "weak link" in the life of the insect pest. If the plant or animal being protected is subject to injury, or if the food product derived from the plant or animal is subject to insecticide contamination, the proper dosages and precautions are clearly stated on the label of the insecticide container.

It is reassuring to know that the law pertaining to insecticide labels is both rigid and specific. You may be surprised to hear that the requirements for an insecticide label that will pass in interstate commerce are far more complete and exacting than the labels of dozens of patent medicines that are readily available at any drug store.

The dosage at which an insecticide is applied is an important but "tricky" consideration. In most agricultural and other large-scale applications, it is commonly expressed in terms of pounds or ounces of actual insecticide per acre. In order to get it evenly distributed it is practically always diluted in water, distillate, clay or other carrier to give it a relatively large volume. In other words, only a small fraction of the mist or dust that you see coming out of the applicator is poisonous. Also, the more toxic the material the less of it is needed per acre to do the job intended. For example, DDT is commonly used at one pound or less of actual insecticide per acre, diluted in 1 to 10 gallons of liquid or perhaps 20 to 40 lb. of dust. Some of the very "safe" insecticides like rotenone are applied at much higher dosages, but the highly effective grasshopper poisons are commonly used at 1 to 4 ounces per acre, i.e., less than half a cup of the actual poison spread out over 43,560 square feet! The main point here is that even the very toxic compounds are considered "safe" because of the minute dosages used.

Time does not permit a detailed consideration of the effects of even one insecticide on all kinds of animals. In general, DDT and the other chlorinated compounds are very toxic to insects and most other cold-blooded animals, including fish; and much less toxic to birds and mammals, including man. They act on the nervous system and are slow in their action, compared with many other poisons.

In an important experiment carried out by a competnt medical doctor employed by the U.S. Public Health Service, a group of volunteer prisoners each ate 35 milligrams of actual DDT per day for a period of one year.

After the completion of this experiment the doctor in charge testified in court to the effect that these men did not show any ill effects. He also testified as an expert witness that a DDT spray of one pound per acre involves no danger to human health.

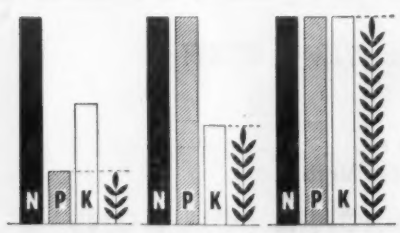
Up to this point I have discussed the proper and recommended use of insecticides, with only casual references to the fact that they may also be misused. Unfortunately they are sometimes misused by some people and this is, in my opinion, the very heart of our problem. By and large, I think most of the misuses are due to carelessness or lack of information, rather then to disregard of the public welfare. I don't think I am stretching a point when I say that the same is true of fire and gasoline, or even of automobiles and motor boats. I am old enough to remember people who actually thought automobiles should be outlawed because of the hazards they involved. I haven't heard such a statement for many years, although our highway fatality statistics would give it considerable support if someone wished to revive it.

This brings us to the ugly word "regulation" which we Americans simply do not like. Yet it is a part of our daily lives which we take for granted in many instances. We are permitted to use firearms, but only with certain basic restrictions on such use. The same is true of fire, of gasoline, of the automobile and many other conveniences that we have no thought of outlawing.

Why should not insecticides be placed in the same category? Isn't it logical to use them properly and enjoy the advantages they can provide, and to set up appropriate safeguards to avoid misuse and thereby protect the public interest?

Actually this is not only logical but it is already being done to a greater degree than most of you realize. The relatively exacting, and I think appropriate, insecticide labeling law has already been mentioned. Several states have passed special laws and established regulations intended to

*Presented before Open Forum on Use of Pesticidal Chemicals, Boston, Mass., Oct. 7, 1958.



PLANT LAW—The law of limiting factors is one of the most important laws affecting the farmer, American Potash Institute agronomists report. Here one effect of this law on plant growth is illustrated. Each nutrient has a specific job to do in plant life and when one element—just one—is missing or short, the plant's whole development is stunted. On the left, plant development is limited by too little phosphate (P) available. In the center, potash (K) is the limiting factor that controls yield. At right, when you satisfy the crop's need for all nutrients, you get maximum growth. Complete—balanced—fertilization is one step toward licking the many limiting factors most farmers face.

Elliot K. Ludington

E. K. Ludington, Chase Bag Board Chairman, Dies

NEW YORK—Elliot K. Ludington, 82, chairman of the board of directors of Chase Bag Co., died of a heart attack on Oct. 8 at St. Clare's Hospital, New York City. Mr. Ludington had been in the bag business more than 60 years.

He was originally from St. Louis, where he was active in civic and industrial affairs for many years. More recently, he maintained residences in Greenwich, Conn., and Miami Beach, Fla.

During Mr. Ludington's tenure as president of Chase Bag, from 1910 to 1934, the firm was expanded from two plants to a nation-wide organization of 13 factories and a paper mill. As chairman of the board he continued active interest in the company, particularly in the development of new products.

protect the public interest in regard to pesticide usage.

One example is Connecticut. Its law, aimed primarily at the regulation of airplane spraying and dusting, first went into effect in 1947 and has been amended three times. I know it is being criticized by at least a few extremists on both sides of the fence. It seems obvious that only time will tell whether it is the ideal law, whether or not it will protect the public interest as intended.

As a newcomer in this great commonwealth where so much of the history of economic entomology in the United States has been made, I am not going to even pretend to chart the course that eventually should be followed here. I do, however, claim that at the University of Massachusetts we have a group of scientists in the service of this commonwealth who can contribute significantly to the research, teaching and extension work that will be needed for the ultimate solution of this complex problem. Some of these men are on this platform with me today.

So far as entomology is concerned, one of the very first courses in pest control in the whole country was taught here, and we are still considered among the top 12 entomological training centers in the 48 states. However, this is only part of the story. In the same and other departments we have competent and cooperative specialists in conservation and wildlife management, shade tree care and protection, plant pathology, forestry, veterinary medicine and other areas of applied science. Our time and facilities are here to be used. Some of us have devoted much time and thought to this problem, and stand ready and willing to contribute a lot more.

I need not dwell on what we have done or are doing because this is going to be covered by other speakers. I do, however, wish to publicly acknowledge the wholehearted and sincere collaboration we now have with the Department of Natural Resources, the State Reclamation Board, the Department of Public Health, the Division of Fisheries and Game, the Department of Public Works, the Water Resources Commission, the Metropolitan District Commission, the Massachusetts Department of Agriculture and the U.S. Fish and Wildlife Service. They have made us feel that we are full partners in a united search for answers to the problems at hand, and this is the role that we pledge ourselves to fill to the best of our capabilities.

In closing, I wish to add a word of caution against any hasty and ill-considered action that would in the long run do more harm than good. I suggest that a small but competent and responsible study group might be established by the General Court to investigate the whole pesticide problem and bring forth recommendations for dealing with it that are appropriate to our situation.

As a starting point from which we may together, at this meeting, set our sights in the right direction, I propose the following resolution for your approval:

WHEREAS, the misuse and injudicious use of pesticides inevitably result in adverse criticism, and in some cases bring discredit on sound pest control practices, and

WHEREAS, such criticism or condemnation tends to discredit all people engaged in pest control activities

BE IT RESOLVED, that the group here assembled condemn all unsound and unproven pest control practices, and

BE IT FURTHER RESOLVED, that we hereby solicit the cooperation of all agencies engaged in any pest control practices in an all-out effort to eliminate the use of all unsound practices, and to secure the immediate correction of any defects that may be detected.

Dr. Elmer V. McCollum Wins Spencer Award

KANSAS CITY—Dr. Elmer V. McCollum, biochemist and emeritus professor of biochemistry at Johns Hopkins University, has been elected to receive the Charles F. Spencer Award for 1958. The award, given for meritorious contribution to the field of agricultural and food chemistry, is administered by the Kansas City section of the American Chemical Society and sponsored by Kenneth A. Spencer, president of Spencer Chemical Co.

Dr. McCollum is accredited with the discovery of Vitamin A, the distinction between Vitamin A and Vitamin D, and pioneer work on Vitamin B. His work in evaluating feeds and foods biologically laid the groundwork for the study of the nutritive needs of farm animals and for major improvements in their care.

Henry F. Woodward, chairman-elect of the Kansas City section of the American Chemical Society made the announcement of this year's recipient who was chosen by a jury of twelve men active in the field of agricultural and food chemistry. The award, which consists of a medallion and a $1,000 honorarium, was founded by Kenneth A. Spencer in honor of his father, Charles F. Spencer, who died in 1942.

The award will be presented in Kansas City on Nov. 14 by Dr. Nat C. Robertson, vice president — research and development, Spencer Chemical Co., at the annual Fall Chemical Conference sponsored by the Kansas City section of the American Chemical Society. Previous winners of the award are Dr. Conrad A. Elvehjem, Dr. Ralph M. Hixon, and Dr. William Cumming Rose.

Name Richard N. Augustson As Development Manager

ST. LOUIS—Richard N. Augustson of St. Louis joined the development department of Monsanto Chemical Co.'s overseas division as area development manager for Latin America, effective Oct. 15, Edward B. Seaton, division director of development, announced recently.

Mr. Augustson, who has been a development project investigator for the company's inorganic chemicals division, was first employed in 1951 at Mound Laboratory, which Monsanto operates for the Atomic Energy Commission at Miamisburg, Ohio.

Firm Gets Charter to Insure Anhydrous Ammonia Industry

MEMPHIS—A charter has been issued to a new insurance corporation whose first policies will be aimed primarily at serving the nationwide anhydrous ammonia industry. The firm is the Chemical Fire and Casualty Insurance Co.

Heading the firm will be Gen. Ralph H. Wooten (retired) as chairman of the board. Gen. Wooten is executive vice president of the Mid-South Chemical Co. President and a director of the firm is George C. Niemeyer, a Memphis life insurance man.

Jack F. Criswell, executive vice president of the Agricultural Ammonia Institute here, said the industry has had problems with its insurance in many areas of the nation, and expressed the hope that the new company will help to provide improved coverage and service throughout the U.S.

The insurance company will make a public offering of stock at a later date. Among the directors chosen to date are E. W. Thomas, president of the Farm Service Corp., Booneville, Mo., distributors of anhydrous ammonia, and former president of the Agricultural Ammonia Institute; Standley Lusader, owner of Lusader Fertilizer Service, distributors of anhydrous ammonia in Perrysville, Ind.; and Ward Archer, Memphis advertising and public relations man.

Ray Fish Elected Director Of Witco Chemical Co.

NEW YORK—The election of Ray Fish, of Houston, Texas, to the board of directors of the Witco Chemical Co., Inc., was announced recently by Robert I. Wishnick, chairman of the board. Mr. Fish is chairman of the board and director of the Fish Engineering Corp., Fish Northwest Constructors, Inc., Fish Service Corp., Fish International Corp. and Fish Petroleum Corp., all of Houston.

Sales Representative Named

NEW YORK—R. Peltz Co., Philadelphia, has been appointed exclusive sales representative for Prentiss Drug & Chemical Co., Inc., New York, in the Philadelphia, Baltimore and Washington area, effective Oct. 20. Prentiss is a manufacturer of basic insecticide and rodenticide formulations.

Big Increase in Use of Fertilizer Predicted by TVA

KNOXVILLE — The fertilizer industry has seen a period of rapid growth in the past 25 years and use of fertilizer will continue to increase during the next decade, TVA says in a recently published booklet "Fertilizer Trends" showing statistically some of the principal trends in the industry.

"During the past 25 years the fertilizer industry has seen a period of rapid change—a period of vast expansion of the old established companies and the entry of many new companies," the booklet states.

"Since World War II fertilizer consumption in the U.S. has more than doubled—from 2.6 million tons of plant nutrients in 1945 to over 6.2 million tons in 1957 and an estimated 6.4 million tons in 1958. Some geographic areas are only now beginning extensive use of fertilizers. Trends in population growth and total fertilizer consumption over the past 25 years would suggest a national market in the early 1970's exceeding 10 million tons of plant nutrients used to grow the foods and fibers for the growing population of the country.

"Although relatively large proportions of some crops are now fertilized, in many cases they are fertilized at rates-per-acre much lower than the land-grant colleges recommend.

"As an example, farmers in nine southeastern states still use less than half as much total fertilizer as their state colleges recommend. In 1954 less than 20% of all hay and pasture crops in the Southeast were fertilized. If the rest of this hay and pasture were fertilized, the use of fertilizer in these states would almost double. This represents an immense educational challenge and market opportunity.

"In addition, much more emphasis will probably be placed upon forest fertilization, non-farm use of fertilizers, and other such enterprises."

The booklet shows that consumption of all fertilizers increased in the nation from 5,546,000 gross tons in 1934, to 22,224,000 in 1957.

The booklet lists producers of various materials and total production figures including elemental phosphorus, superphosphate, concentrated superphosphate and ammonium nitrate.

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GIBBERELLIC STUDIES

(Continued from page 1)

effectiveness during reasonable periods of storage?

Tests with salts singly.—Fifteen salts—forms of nitrogen, potassium and phosphate—were combined singly with gibberellic acid in several strengths. The mixtures were stored in two atmospheric conditions, dry and humid, for 5 periods ranging from 7 to 112 days. For further comparison, some test mixtures were made up and applied to plants on the same day.

The test plant throughout these experiments was the Pinto bean, which responds quickly to the acid. Each test mixture was applied in water solutions at a rate providing a plant with 1 p.p.m. of the acid. For experimental precision, solutions were sprayed with an atomizer on the trifoliate leaves, which form soon after the first two developing leaves. The criterion of effectiveness was the amount of stem lengthening measured 5 days after treatment, checked against the stem height of untreated plants.

In general, gibberellic acid proved compatible with each of the fertilizer salts, and adequately stable in all combinations for all periods of storage. Some nutrient salts appeared to reinforce the gibberellic acid, so that stem height gains were greater; addition of some salts slightly lessened height gains; and some salts had no influence on this effect of the acid.

The possibility was ruled out that a nutrient alone might have caused the same stem height gains. Each salt, without gibberellic acid, was applied to test plants, but none spurred stem growth noticeably in so brief a time as 5 days.

Tests with two complete fertilizers.—Two solid mixed fertilizers were combined with gibberellic acid and tested in the same way as the 15 individual salts. The mixed fertilizers contained widely different proportions of nitrogen (N), phosphoric oxide (P_2O_5), and potash (K_2O): 20-20-20 and 10-52-8. In these preliminary trials with complete fertilizers, the gibberellic acid was somewhat less effective than with most of the single-nutrient salts. However, the plants gained enough to indicate some practical use, perhaps by gardeners and growers of ornamentals.

A storage test on gibberellic acid in plain water solution showed that after 14 days a solution was still highly effective when applied to test plants. This indicates possibilities for its use in combination with liquid fertilizer materials.

A next step was to determine whether the Pinto bean plant could obtain and use gibberellic acid from the soil. Soil applications of gibberellic acid have rarely been tried, but success with them would be essential to any practical application with solid fertilizer.

The soil used was an acid, sandy type, and ordinarily good fertilization was established before the experiments started. With this soil, and under greenhouse conditions, the results continued favorable.

Each half-pound of test soil was treated with solutions (5 milliliters) containing 1, 10, and 100 p.p.m. of gibberellic acid. Pinto bean plants 10 days old were then transplanted into soil given each treatment. When stem heights were measured 5 days later, the plants in treated soil stood taller than those in untreated soil. The tallest plants—2 to 3 times taller than controls—were in soil treated with 100 p.p.m. of the acid.

Evidence was also obtained that gibberellic acid may remain effective in a soil for several months. For this test the acid, sandy soil was treated with 10 and 100 p.p.m. of gibberellic acid in solutions. A succession of three Pinto bean crops was planted. Each crop was allowed to grow 15 days. Even the third crop showed stimuation effects though the acid had been in the soil nearly 100 days.

ARS scientists emphasize that these experiments are preliminary and are not a basis for recommendations as to the use of fertilizer-gibberellic acid mixtures.

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Cornell Scientists Start Pesticide Study Plan

GENEVA, N.Y.—A pesticide residue research program has been inaugurated at Cornell's agricultural experiment stations at Ithaca and Geneva to aid growers and food processors in meeting recent federal legislation defining safe limits of residues of chemicals.

An account of the facilities and operation of this program appears in the current issue of "Farm Research," available upon request to the experiment station at Geneva.

"Based on the results of this coordinated program, all recommendations for the use of pesticidal chemicals are checked with regard to residues which may be expected at harvest," explain the Cornell scientists conducting the program.

"The extension service of the College of Agriculture recommends only those pest control chemicals which, when used on food crops according to specific directions, will not leave residues in excess of the federal tolerances," they add.

Both chemical tests and biological assay methods are being employed in the project. Bioassays, using the common fruit fly, are employed to check certain chemical tests and in cases where no satisfactory chemical methods are available or are too time-consuming.

At Ithaca attention is focused chiefly on residues on fruits and vegetables for the fresh market and on forage crops and resultant products, such as meat, milk and eggs. At Geneva, residues in or on fruits and vegetables to be used for processing and their resulting processed foods are studied.

"The program is primarily a research operation as distinct from a service operation," explain the scientists. "The laboratories are not maintained to serve growers or grower groups and others in determining residues for their own information."

Donald E. Brubaker Named To Sales Administration Post

ASHLAND, OHIO—Donald E. Brubaker has been promoted to sales administration manager by The F. E. Myers & Bro. Co. here, E. M. Myers, vice president in charge of sales, announced. Mr. Brubaker was formerly marketing manager.

Mr. Brubaker will be responsible for sales budget and expense control, customer services, sales forecasting, market and distribution analysis, and printing and mailing.

PHOSPHATE ORE MINING—Last month, Central Farmers Fertilizer Co. of Chicago, began mining and stockpiling phosphate ore at its Montpelier, Idaho location. According to company president, Joseph J. Lanter, the firm now employs a mile-long belt conveyor system that delivers 400 tons of ore an hour to the Phosphoria Gulch stockpile, and between 250,000 and 300,000 tons of rock phosphate will be stored this fall for processing into concentrated fertilizer products in the plant. Production of fertilizer is scheduled to start early next year, Mr. Lanter said. Shown above in the top photo is the phosphate rock beneficiating building. Below is the first phosphate ore moving from the stockpile to the conveyor.

Cotton Yield Up 52 Pounds Over Previous High

WASHINGTON — The indicated yield per harvested acre of the cotton crop was 469 lb. or 52 lb. above the previous high, reported the U.S. Department of Agriculture's crop reporting board.

In the Carolinas and Georgia, yields were turning out better than expected earlier, USDA says. September weather was favorable and the percent gained to Oct. 1 was considerably higher than average. In the Central Belt, however, where the crop was two to three weeks late, excessive rains during September slowed maturity and seriously interfered with harvesting.

In Texas, harvest was almost complete or fairly well advanced before September rains set in. September weather was generally favorable in Oklahoma, while rains delayed harvest in New Mexico, Arizona and California.

Esper K. Chandler Named to NPFI Staff

WASHINGTON—Esper K. Chandler, assistant professor of agronomy research at the Louisiana State University's North Louisiana Hill Farm experiment station, has been named district representative of the National Plant Food Institute for the Southeastern regional office at Atlanta, Dr. Russell Coleman, executive vice president, announced.

Mr. Chandler received his bachelor of science degree in general agriculture and rural sociology in 1948 from Louisiana State University and his master of science degree in soils from the university in 1955. As district representative, he will be under the supervision of Dr. Samuel L. Tisdale, southeastern regional director for NPFI.

He was employed for a period of two years by the Phillips Petroleum Co. as a fertilizer sales and agronomic educational district representative. In his most recent position, at the North Louisiana Hill Farm experiment station, he was associated with numerous variety, cultural and fertility field and laboratory research studies with most of the leading agronomic crops of the Southeast.

In addition to his agronomic research background, Mr. Chandler has had extensive experience in commercial farming.

McGregor Company Starts Fertilizer Operations

GARFIELD, WASH.—The first anhydrous ammonia cars began arriving here recently to start operations at the new McGregor Co. fertilizer plant located just west of the Garfield Union Pacific depot, Sherman McGregor announced.

The Union Pacific freight warehouse has been leased by McGregor's for the storage of agricultural chemicals and fertilizer. Dan Imler will manage the new plant. He formerly represented McGregor's in the Colfax, Wash., area for several years.

Hooker Names Two In Phosphorus Division

NIAGARA FALLS, N.Y.—Harold E. Frederick has been named sales manager, agricultural chemicals, and Errol F. Cook has been named responsible for technical service, agricultural chemicals, in the phosphorus division of Hooker Chemical Corp.

Mr. Frederick, whose office is at Marysville, Ohio, had been senior vice president, agricultural chemicals, at Shea Chemical Corp. prior to its merger into Hooker last May. Mr. Cook formerly held a technical service post with Shea.

FERTILIZER CHANGES

(Continued from page 1)

told the group that a "give and take" attitude between the fertilizer producing industry and agricultural workers in the federal government and at the state level could solve many if not most of the problems of the trade.

He said that incomplete knowledge can fall short of the mark. As an illustration he pointed out that agricultural extension workers at both the federal and state levels should know not only how benefit is derived from applying fertilizers to soils but also how recommendations can make a tremendous difference to fertilizer manufacturers.

The moderator afforded a statistical backdrop for the succeeding speakers by recalling that the fertilizer industry has seen a virtual revolution during the past 25 years. Within that time, Dr. Sauchelli said, it has developed from a scavenger industry, wherein the chief ingredients comprised organic waste, to a huge, respected chemical industry the "handmaiden of agriculture."

Two of the most significant developments, he said, are the use of ammoniating solutions and the granulation of dry materials. The industry has grown in both its productive capacity and the use of its products, delivering more than 22 million tons a year worth more than a billion dollars.

Rated capacity of plants has increased significantly the past five years, Dr. Sauchelli observed, moving from 27 million tons to 30 million. During the same time sales declined 4.5%, he said. Individual advances in productive capacity were as follows: synthetic ammonia from 1.5 to 3 million tons, phosphates from 3.6 million tons to 4.6 million, potash from 1.7 to 2.7 million tons. These, he reminded, are the rated capacities whereas actual productive ability might be 25% greater.

During the same period, Dr. Sauchelli said, the costs of goods and services necessary to operate rose as much as 31% and freight costs rose 30 to 35%. Gross profits were squeezed greatly, and the added costs of doing business were not passed on to the consumer, forcing the fertilizer industry to absorb losses.

Commenting further on the physical setup of the industry, Dr. Sauchelli said that it employs some 39,000 workers, 29,400 of which are production people whose average weekly pay comes to $73.39.

Mr. Gillis prefaced his remarks by stating that the objective of the fertilizer industry is primarily to help the farmer to realize a maximum return from his investment in plant food and from his work. He went on to observe that though all fertilizer plants have similarities yet it is difficult to point out a "typical" plant.

There has been a profound change in the industry since 1950, Mr. Gillis said, particularly in the raw materials used. The advances in technology have brought with them also problems, many of which are being solved.

The ideal material, however, has not yet been evolved, Mr. Gillis said. It would be a free flowing, non-hygroscopic dust—a free, uniform, nonsegregating mixture that could be easily applied by the farmers' machinery.

The physical condition of mixed goods is one of considerable importance, Mr. Gillis said. He said that the segregation of materials can occur during many phases of manufacturing, storage and transporting. This fact makes it difficult to meet every grade requirement, since the separating of particles can cause different results from tests on the same bag of fertilizer.

Granulation has helped in this regard, but even it does not offer a positive way to stop segregation of particles, Mr. Gillis said. Granulation was termed by Mr. Gillis as the greatest step forward in recent years. At the same time, however, it costs more to produce, requires more skill to make it and demands more equipment and greater capital investment, he said.

The speaker deplored the fact that so many grades seem necessary to satisfy the needs of agriculture in various portions of the country. He said that there are some 900 grades in existence, with some mixing plants making as many as 150 grades. Such a situation adds to costs and increases complications. There is a downward trend in the number of grades, but this trend needs to go faster, Mr. Gillis said.

Progress is being made, he said, but many problems remain. The trend today, of course, is toward higher analyses which were impossible when the source of nitrogen was organic matter. Modern grades now run from 30% to 50% plant food. This means lower unit costs, relatively lower freight costs and a better product.

Manufacturing problems are far from being absent, Mr. Gillis said. Careful manufacturing procedures are mandatory now, to prevent losses of nitrogen. Close control is more necessary than ever before. Excessive recycling of materials adds to cost.

Technological and merchandising progress still needs to be stepped up and some additional attention paid to registration procedures, many of which still operate on old fashioned concepts concerning advertising and labeling, Mr. Gillis said.

Mr. Cox indicated in his talk that much confusion comes from the fact that farmers are not always addressed in language they understand when it comes to describing fertilizer use, that the facts concerning the economics of plant nutrition have not entirely gotten through to the consciousness of many of these fertilizer users.

Still, he said, the fertilizer industry is not entirely responsible for the decreasing sales in late years. The population increases predicted for future years have not yet made a difference in fertilizer use.

Mr. Cox said that probably by 1965 the farmer's "halo of independence" will be "tarnished," and the operation of business on the historic basis of supply and demand will be mostly gone. "Farming by decree makes it very difficult for the fertilizer industry to operate normally," he declared.

The speaker pointed out the conflicting opinions regarding fertilizer, saying that the controversy regarding the employment of elemental N-P-K is a good example of differences in viewpoint as is also the policy lying back of fertilizer pesticide mixtures. Such mixtures, he reported, have seen a 100% increase in the past two years.

Mr. Cox reiterated the difficulty in eliminating variations in grades for checking. The same mixture of materials may give different readings under varied conditions, he said. Yet, if a manufacturer goes beyond the necessary analysis, he loses this margin of profit, and if he is found short, he is liable to a fine.

In his portion of the panel discussion, Mr. Crittenden said that increases in fertilizer consumption during the past few years were not due merely to change, but to meeting the needs of agriculture. Three factors contributed to the increases. These were use of higher quality seeds and plants, use of proper nutrients and use of adequate protectants on the plants.

Although millions of tons of fertilizer are used each year, the basic materials are supplied by a relatively few firms. More plant food will be needed in the future to produce better quality crops and greater quantities of food and fiber. In looking into the future, Mr. Crittenden said that plant hormones, systemic pesticides and other developments will all have a part in the agriculture of tomorrow to a degree not known today.

Dr. Detlev W. Bronk, president of the American Academy of Science and head of the Rockefeller Foundation, told the group at a luncheon meeting that research is the lifeblood of industry and that industry in turn makes it possible for large research organizations to conduct their work. "New knowledge satisfies the intellect and spirit, but can be made useful only if translated by industry," he said. Industry and the universities must work together to keep America strong, he said.

The value of allowing individuals to contribute to socially helpful agencies was emphasized by Dr. Bronk. Government giving is necessary but it should be adjusted to individual giving so the public will not become indifferent to needs, he said.

The need of agricultural research at the present was given particular emphasis by the speaker, who reminded that while technical minds of the nation are focused on the physical sciences the value of agricultural knowledge must not be overlooked.

A discussion on public relations in agriculture and agricultural research also was presented, with Walter B. Garver, U.S. Chamber of Commerce, as moderator. Phillip M. Wagner, representing the Baltimore Sun, described the metropolitan newspaper attitude. Bernard L. Yudain, Time, Inc., talked on "The Mass Circulation Magazine and Agriculture's Public Relations," and Merle E. Ward, Du Pont, discussed the contributions industry might make to a better understanding of agriculture.

NAMED DISTRIBUTOR

PEORIA, ILL.—The Truck Equipment Co., 2021 So. Washington St., Peoria, Ill., has been named distributor for the Highway Equipment Co., Cedar Rapids, Iowa. Truck Equipment Co. will handle Highway's line of lime spreaders, combination lime and fertilizer spreaders and mobile spreaders.

BUYS FIRM

(Continued from page 1)

Buhner Fertilizer Co. of Danville, Ill., and two years ago in June they bought the M. Hamm Co., Washington Court House, Ohio.

The A.A.C. Co. has 32 plants and sales offices in the United States, Canada and Cuba, and has been engaged in the manufacture of fertilizers and heavy chemicals for over 100 years. The fertilizers are sold under the brand names AGRICO, AA Fertilizer and 18% Normal Superphosphate.

The firm owns and operates phosphate rock mines at Pierce, Fla. and produces elemental phosphorus, phosphoric acid and phosphorus compounds for industrial use. It also produces edible, photographic, pharmaceutical and technical grades of gelatin, sulfuric acid, fluorides and silicofluorides.

Pacific Northwest Grain Sanitation Meeting Set

PULLMAN, WASH. — The annual Pacific Northwest grain sanitation short course will be held on the Washington State College campus, Oct. 28-29. The 2-day session will bring food-grain handlers, processors and granary operators up-to-date on latest methods and materials for safeguarding grain quality.

David Walker, WSC entomologist in charge of the short-course program, said the program this year will include regulations and operation of the Food and Drug grain inspection and standards program in the Northwest, and grain sanitation research underway at WSC, Oregon State College, and the University of Idaho. Fumigation techniques for insect control, seed treatment to prevent smut and wireworm damage, and prevention of grain molds are other program topics.

Speakers will include Food and Drug Administration officials, and research and extension personnel from the three land-grant colleges and manufacturers of chemicals and equipment used in protecting grain quality. The annual short course is sponsored by the three land-grant colleges in cooperation with the Pacific Northwest Crop Improvement Assn. and the Pacific Northwest Grain Dealers' Assn.

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Farm Changes Greater Than Industrial Revolution

THE trend toward fewer farms, larger acreages, specialization, farm mechanization, and sharply-increased farming efficiency which has developed during the past two decades was described as a "greater revolution than was the industrial revolution in the early 1800's," by a speaker at the recent New England fertilizer conference held in New Hampshire. This strikes us as being a significant statement, and not at all out of line with the facts.

The speaker, a University of Connecticut sociologist, pointed out that the suburbanization movement of the past several years has had a profound effect on changes in the agricultural economy, resulting in fewer, larger, and more efficient farms.

Other influences working on the farm economy, he said, include radio, television and superhighways, all of which tend to make the farmer more a part of the urban community.

As cities expand farther out from their former borders, the farmer is naturally affected and this in turn alters the merchandising problems of those who sell to the farmer.

The rural land-owner faced with encroaching housing developments and other "city" influences is not particularly victimized by these activities, for he is sometimes offered attractive prices for his property and is happy to sell part of his acreage and perhaps continue to operate on the remaining acres with specialized farming which could find a ready market with the added numbers of people in the community.

It is all part of the changing scene, which the Connecticut sociologist terms a revolution greater than the celebrated industrial turn-around of more than a hundred years ago.

Changes being wrought penetrate deeply into the marketing pattern of agriculture, and these changes are not limited to how the farmer sells his produce. They include the people who sell to farmers . . . the lending agencies who supply capital for the purchase of fertilizers and pesticides, and of course the firms supplying materials for farm use.

Farmers Find Pest Control Strictly for the Birds

FARMERS in the Sandusky, Ohio area have been battling not only the usual pests which operate in corn fields, but also an aerial invasion of red-winged blackbirds. These feathered pests, according to reports, appear to be oblivious to danger and to most efforts to drive them away.

A description of these activities to shoo away the birds was published in a recent issue of the Portsmouth (Ohio) Times, which explains that in previous seasons, the blackbirds have been around, but had feasted on corn in bottom lands which this year suffered flood damage and was consequently not so attractive. So the hungry birds drew a bead on the upland cornfields and attacked en masse.

"Farmers here have brought firearms into use, but gunfire only chases the birds for a brief period," the report says. "Then they return to pull down the husk and get their fill of fresh corn on the cob.

"In the case of sweet corn this results in souring of the ear and ruins it for harvest.

"To protect 200 acres of corn on one Sandusky County farm, an estimated 20,000 rounds of ammunition were fired. The farmer and his son, with a neighbor, have manned lookout towers bordering the cornfield, for the past month. Although expensive, the farmer reports that his method is effective."

But not all of the methods attempted to rid the area of the birds have worked out successfully. A research operation, called "Bye Bye Blackbird" is headed by Dr. Maurice L. Giltz, professor of zoology at Ohio State University. He has set up headquarters on the shore of Sandusky Bay.

At the end of his first season of intensive research Dr. Giltz says he has been unable to find a chink in the redwings' armor. "They adapt to anything we throw at them," said Prof. Giltz glumly.

A survey of 555 Ottawa County farms showed 17% of the corn crop was destroyed—at a cost of $110,000. On one Sandusky County farm Dr. Giltz and his aides found 975 damaged ears of corn on 1,000 stocks.

After days of exploding firecrackers, acetylene bombs, and using amplified sounds, the birds remained. Said Prof. Giltz:

"As the day wears on they become hungrier, nothing will move them . . . not even rocks. They lose all respect for danger."

Instructions Sought on How Not to Grow Crops

A BIT of ironical humor, concerning the current agricultural situation and the continuing controversy over farm price supports and the philosophies underlying them, was inserted in the Congressional Record during the late session of Congress by Sen. Barry M. Goldwater (R., Ariz.). We think Croplife's readers will gain a little amusement from the piece, whether or not each might agree with its import. The article, in the form of a letter to Sen. Goldwater, follows:

"Dear Mr. Senator:

"My friend Bordeaux over in Pima County received a $1,000 check from the government this year for not raising hogs. So I am going into the not-raising-hog business next year. What I want to know is, in your opinion, what is the best kind of hogs not to raise? I would prefer not to raise razorbacks, but, if that is not a good breed not to raise, I will just as gladly not raise any Berkshires or Durocs.

"The hardest work in this business is going to be in keeping an inventory of how many hogs I haven't raised. My friend Bordeaux is very joyful about the future of this business. He has been raising hogs for more than 20 years and the best he ever made was $400 until this year, when he got $1,000 for not raising hogs. If I can get $1,000 for not raising 50 hogs then I will get $2,000 for not raising 100 hogs.

"I plan to operate on a small scale at first, holding myself down to about 4,000 hogs, which means I will have $80,000. Now, another thing: These hogs I will not raise will not eat 100,000 bushels of corn. I understand that you also pay farmers for not raising corn. So will you pay me anything for not raising 100,000 bushels of corn not to feed the hogs I am not raising? I want to get started as soon as possible as this seems to be a good time of the year for not raising hogs.

Octave Broussard

"P.S. Can I raise 10 or 12 hogs on the side while I am in the not-raising-hog business—just enough to get a few sides of bacon to eat?"

Public Relations Example

WHEN one has a canary in the house, the bird is fed and it sings for its supper. If you own a horse, you feed him because he works. If you have chickens on the farm, they either have to lay eggs for their keep, or they may serve as food. But if you have a dog, he probably does nothing and lives best of all. And when he dies, his master nearly dies with him. The reason: The dog has a public relations department at his rear . . . and just as long as it wags, he has you sold on him.—"News Bin," Atkinson Milling Co.

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MEETING MEMOS

Nov. 13-14—Southwest Accident Prevention School for Fertilizer Plant Supervisory personnel, Sheraton-Terrace Motor Hotel, Austin, Texas.

1959

Jan. 7-8 — Fertilizer Short Course, Iowa State College, Ames.

Jan. 7-8—Fifth Annual Insect Control Conference, Mississippi State University, State College, Miss.

Meeting Memos listed above are being listed in this department this week for the first time.

Oct. 21-24—Stored Grain Insect Control Conference, Kansas State College, Manhattan, Kansas.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 27 — Western Range Fertilization Conference, Riverview Country Club, Redding, Cal.

Oct. 27-30—The American Forestry Assn., 83rd Annual Meeting, Gearhart, Ore.

Oct. 28-29 — American Society of Range Management Meeting, Riverview Country Club, Redding, Cal.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-30—Annual Southeastern Soil Fertility Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Oct. 29-31 — National Agricultural Chemicals Assn., 25th annual meeting, General Oglethorpe Hotel, Savannah, Ga.

Nov. 5-7—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 10-11 — Agricultural Aviation Research Conference, Milwaukee.

Nov. 11-13—New York State Insecticide and Fungicide Conference, 20th Annual Meeting; and 11th Annual Pesticide Application Equipment Conference, Bibbins Hall, Cornell University, Ithaca, N.Y.

Nov. 12-13 — Chemical Market Research Assn., Fall Meeting, St. Paul Hotel, St. Paul, Minn.

Nov. 12-13—Oregon Weed Conference, annual meeting; La Grande, Ore.

Nov. 16-18—National Fertilizer Solutions Assn., Netherland Hilton Hotel, Cincinnati, M. F. Collie, 2217 Tribune Tower, Chicago, Executive Secretary.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 19-20—Carolinas-Virginia Pesticide Formulators' Assn., Carolina Hotel, Pinehurst, N.C.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Nov. 25—Eighth Semi-Annual Meeting and Winter Conference, Manufacturing Chemists' Assn., Hotel Statler, New York.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-4—North Central Weed Control Conference, Netherland Hilton Hotel, Cincinnati.

Dec. 3-4—Annual Soil Fertility and Plant Nutrition Short Course, University of Missouri, College of Agriculture, Columbia, Mo.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 8—Annual Soils and Fertilizer Short Course, Coffey Hall, University of Minnesota Institute of Agriculture, St. Paul.

Dec. 8-10—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

1959

Jan. 7-9—Thirteenth Annual Northeastern Weed Control Conference, Hotel New Yorker, New York.

Jan. 20-22—California Weed Conference, Santa Barbara, Cal.

Jan. 12-13—Ohio Pesticide Institute, annual winter meeting, Neil House, Columbus, Ohio. J. D. Wilson, Secretary, Agricultural Experiment Station, Wooster, Ohio.

Jan. 21-22—Northwest Agricultural Chemicals Industry Conference, Benson Hotel, Portland, Ore.; George Kitzmiller, Pacific Cooperatives, Portland, conference chairman.

Jan. 21-23—Western Cooperative Spray Project, Benson and Imperial Hotels, Portland, Ore.

Jan. 22-24 — Agricultural Aircraft Assn., Senator Hotel, Sacramento, Cal.; Wanda Branstetter, Chandler Field, Fresno, Cal., Executive Secretary.

July 7-9 — Pacific Northwest Plant Food Assn., 10th Annual Regional Fertilizer Conerence, Tacoma, Wash.

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Chantland Mfg. Co. 19
Chase Bag Co. 5
Chemagro Corp. .....
Chemical Eng. Serv. Div. of Manitowoc Shipbuilding, Inc. .....
Chemical Insecticide Corp. .....
Clover Chemical Co. .....
College Science Publishers .....
Collier Carbon & Chemical Corp. .....
Commercial Solvents Corp. .....
Consolidated Mining & Smelting Co. .....
Crown Zellerbach Corp. .....

Dallas Tank Mfg. Co. .....
Davison Chemical Co. .....
Deere, John, & Co. 17
Dempster Mill & Mfg. Co. .....
Diamond Alkali Co. .....
Dow Chemical Co. .....
E. I. du Pont de Nemours & Co., Inc. .....
Duval Sulphur & Potash Co. .....

Eastern States Petroleum & Chem. Corp. ...
Emulsol Chemical Corp. .....
Escambia Chemical Corporation .....

Flexo Products, Inc. .....
Food Machinery & Chemical Corp. .....
Frontier Chemical Co. .....

Gates Rubber Co. .....
Grace Chemical Co. .....
Grand River Chemical Div. of Deere & Co. 17

Harshaw Chemical Co. .....
Henderson Mfg. Co. .....
Hercules Powder Co. .....
Highway Equipment Co. .....
Hough, Frank G., Co. 3

Inland Chemical Corp. .....
International Minerals & Chemical Corp. ...

Johns-Manville Corp. .....
Jones, Robin, Phosphate Co. .....

Kalo Inoculant Co. .....
Kent, Percy, Bag Co. 21
Kraft Bag Corp. .....

McCall, Tom, and Associates, Inc. .....
Maas, A. R., Chemical Co. 7
Merck & Co. .....
Meredith Publishing Co. .....
Meyer, Wilson & Geo., & Co. .....
Mid-South Chemical Corp. .....
Miller Chem. & Fert. Corp. .....
Miller Publishing Co. 14, 15
Mississippi River Chem. Corp. .....
Monsanto Chemical Co. .....

National Distillers & Chemical Corp. ....
National Potash Co. .....
Naugatuck Chemical Div., U. S. Rubber Co.
Niagara Chemical Division .....
Northern Peat Moss .....
Northwest Nitro-Chemicals, Ltd. .....

Olin Mathieson Chemical Corp. .....

Pacific Coast Borax Co. .....
Penick, S. B., & Co. .....
Pennsalt of Washington Div. of Pennsalt Chemical Corp. .....
Phillips Chemical Co., a subsidiary of Phillips Petroleum Co. 13
Potash Company of America .....

Raymond Bag Co. .....
Roberts Chemicals, Inc. .....

Sackett, A. J., & Sons .....
Shattuck, S. W., Chemical Co. .....
Shell Chemical Corp. .....
Simonsen Mfg. Co. .....
Sinclair Chemicals, Inc. .....
Smith-Douglass Co., Inc. .....
Smith-Rowland Co., Inc. .....
Sohio Chemical Co. .....
Southern Nitrogen Co. .....
Spencer Chemical Co. .....
Spraying Systems Co. .....
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Stepan Chemical Co. .....
Stewart-Warner Corp. .....
Suamico Eng. Corp. .....
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Tennessee Corp. .....
Texas Gulf Sulphur Co. .....
Tiura Mfg. & Sales Co. .....

Union Bag-Camp Paper Corp. .....
U. S. Borax & Chem. Corp. .....
U. S. Industrial Chemicals Co. .....
U. S. Phosphoric Products Division .....
U. S. Potash Co. .....
U. S. Rubber Co., Naugatuck Chem. Div. ...
U. S. Steel Corp. .....

Velsicol Chemical Corp. .....

Western Phosphates, Inc. .....
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Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

All Want Ads cash with order.

MISCELLANEOUS

BRUSH AND WEED KILLER

KILL SUBMERSED water weeds which foul up motor propellers, tangle fishing gear and choke irrigation ditches with R-H Granular Weed Rhap. Inexpensive, easy to use, sure results. For details write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

HELP WANTED

Production Engineer

Leading manufacturer of fertilizer has vacancy for a young Chemical Engineer to be trained in all phases of fertilizer manufacturing and distribution. Heavy emphasis will be placed upon granulation. Require Chemist or Chemical Engineering degree plus 3 years general engineering experience. Fertilizer manufacturing experience preferred.

Submit resume giving full details of education and training to:

Employment Coordinator
Personnel Department
Virginia-Carolina Chemical Corp.
401 East Main Street
Richmond, Virginia

CALENDAR FOR 1958-59

OCTOBER						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
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NOVEMBER						
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JANUARY						
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FEBRUARY						
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MARCH						
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APRIL						
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SEPTEMBER						
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Iowa State Short Course Divided Into Three Parts

AMES, IOWA—The annual Fertilizer Short Course of the Iowa State College department of Agronomy will be divided into three main parts this year, J. A. Stritzel, extension agronomist, announced.

The first part, Mr. Stritzel said, will be concerned with a meeting for administrative personnel of the industry and will look at the broad problems affecting fertilizer production, future use and so on. The meeting has been tentatively set for December.

The second and third parts, set for Jan. 7-8, will be similar to past short courses except that the first day is intended primarily for fertilizer dealers, Mr. Stritzel said.

For Results . . .
Croplife
. . . Want Ads

Brack B. McHan, 73, Dies

QUINCY, ILL.—Brack B. McHan, 73, vice president and director of research of the Calcium Carbonate Co. of Quincy, died Oct. 7 in St. Marys Hospital here.

Mr. McHan was widely known in feed and chemical fields. Under his direction, the wet process for adding iodine to calcium carbonate was developed.

Croplife

the weekly newspaper of the agricultural chemicals industry announces an all new

Beginning
January 19, 1959

FERTILIZER-PESTICIDE PRODUCTION EDITION

New, added circulation at no added cost!

New, deeper penetration in your prime market!

Circulated exclusively to production and management!

Edited exclusively for production and management!

Here's an up-to-date, authoritative source on problems of liquid and dry formulation of pesticides, fertilizer mixing, carriers, equipment and maintenance, bagging and packaging, storage, safety, materials handling—and many more items that are the prime concern of your prospects! Here are "case history" articles, trade news, patent and trademark information.

It's the new *Fertilizer-Pesticide Production Edition* of Croplife . . . published every 4th week beginning January 19, 1959 . . . aimed directly at production men and plant managers . . . giving you a fully validated, named circulation of approximately 8,500 top prospects in the fast-growing agricultural chemical field. Now . . . while you're looking for ways to make '59 a bigger, better year for you, reserve your space in Croplife's Jan. 19 *Fertilizer-Pesticide Production Edition.* Plan a year-long program in Croplife to reach the complete buying team—production men and plant managers—of the booming fertilizer-pesticide field. Write, wire or call your nearest representative!

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